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POPULAR

PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

JULY, 1955

35 CENTS

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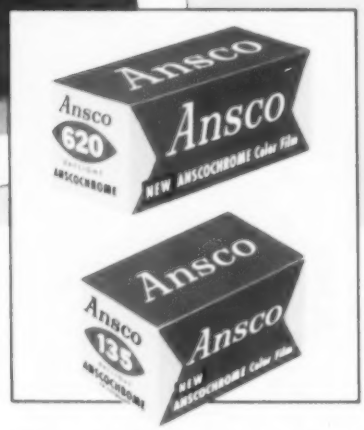

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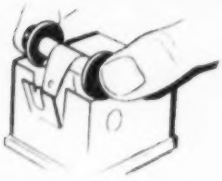
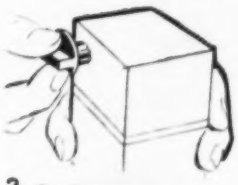
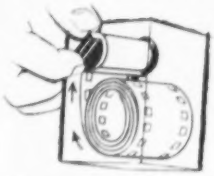


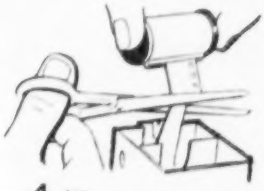
1. Thread film on spool.



2. Replace cover. Insert winding knob.



3. Wind knob 40 half-turns.



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JULY 1955

VOLUME 37 NUMBER 1

POPULAR PHOTOGRAPHY

including CAMERA and AMERICAN PHOTOGRAPHY

WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

Doreen Kilmer is an accomplished dancer who loves to go to baseball games and imagine the energetic motions of the players as *pas de deux, grands jetés*, etc. Photographer George Barris decided to capture some of this whimsy on film, and got her to interpret a play by Jerry Coleman of the Yankees from an INP photo by Harry Hirsch. Barris used 4 speedlights, exposed the Daylight Ektachrome in his Rolleiflex at f/11.

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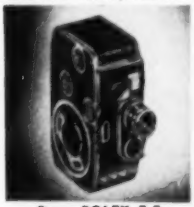

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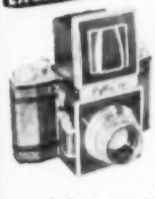

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letters to the editor

The Family of Man—A Rebuttal

It takes the opinion of a strong minority to balance the opinion of a less articulate majority, and both are necessary to evaluate the whole. Keeping this in mind, I reread Fred Ringel's letter on the *Family of Man* in your May issue, and wish to comment on it here in an honest effort to be unprejudiced.

First. Isn't it true that the scientists, politicians, businessmen, churches, and even schools have in the last decade tended to stress the differences within the family of man? Until now, here in New York "diversity of thought and background, semantic concepts and religious goals have made the United Nations into a Tower of Babel." Isn't it about time that, purely as an experiment, it is a healthy thing for photographers to stress the family likenesses—even if it is just the eyes, the nose, and the mouth?

Second. Should the object of the exhibit be to acquaint the public with "the progress of photography and who the great artists are that have mastered the technique of the camera"? In other words, a Who's Who in Photography? Or can we assume . . . that we are also human beings and wish to contribute with our cameras to the over-all welfare of mankind?

Third. Before we censure Mr. Steichen for personal flag-waving, let us remember that although he is one of the great lensmen of all time, his own photography is hardly featured in the exhibit.

Fourth. Mr. Ringel asks, "In what respects does man feel alike?" I would say: we love, we hate, and we fear. We all are born, we suffer, and we die, and within that compass we all must walk. Doesn't the *Family of Man* stress those points? Doesn't it bring the world a little closer?

I can only try to understand an honest difference of opinion, but in all truth I cannot see how Mr. Ringel could make the statement, "The very concept of the *Family of Man* is rather trite. What is worse, it is based on ignorance if not a lie." I must ask Mr. Ringel to say which one it is out of those 500 pictures which he feels is based on ignorance or a lie.

NELL DORR
New York, N.Y.

Our Persistent Editors

As Editor of the monthly bulletin of The Photographic Society of Philadelphia, I have recently published some early history of the Society. I found that The Society was founded in 1862 by Constant Guillou, who was also its first president. He died in 1873. Just recently, two letters addressed to Constant Guillou arrived at the chambers of The Society, 82 years after his death! Both letters came from POPULAR PHOTOGRAPHY Magazine, were dated March 14, 1955; one contained an announcement of your forthcoming International Picture Contest; the other, subscription rates for camera clubs.

I rather suspect that Mr. Guillou would have appreciated this affair. At any rate, I write this note so your readers may laugh with us in enjoyment of this amusing incident.

I. CLYDE CORNOG
Philadelphia, Pa.

The Muckraking May Cover

Andreas Feininger writes in his *Advanced Photography*, in connection with pictures of concentration camps and city sweat shops: "Refusing to look at such pictures is like not daring to look at the reality. Some things must be faced. . ."

I was reminded of this when the cover of POPULAR PHOTOGRAPHY's May number did not show the usual second-grade wenchmeat in red wrapping, but instead, four poor emaciated girls with hunger-drawn faces, hardened by the struggle for existence in New York's garment industry—the sight sent shivers down the spines of thousands of persons (particularly men). In your accompanying notes you tried to mitigate the impression by pointing out that those girls could play golf and take ocean trips at the price of starving; but we know if they tried to get a square meal a week they would lose their jobs and might have to starve again.

We are grateful to you for drawing attention to the shady side of life.

E. A. NORMAN
Cambridge, Mass.

Pictorial Dept.

It seems that lately there have been numerous pictures in print of two common items which, when photographed, took on an obvious humor. These helpless objects of jest were: fancy fireplugs, and footloose shoes appearing in strange places.

Feuerhahn und Schuhe

I thought that your readers might be interested in a photograph (*see above*) I made of fireplug and shoes *together*.

JOSEPH BELLANCA
New York, N.Y.

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The FIRST metal camera in the world was – a VOIGTLÄNDER

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Since then Voigtländer has been granted hundreds of patents for new inventions in the designing of lenses and cameras. They have contributed enormously to the progress of the whole photographic world. Today Voigtländer cameras are known the world over and Voigtländer high-efficiency lenses are the perfect result of centuries of experience and TRADITION.

This is a photograph made recently with a lens from one of the first Voigtländer cameras to illustrate the pin-point sharpness and efficiency of this early lens.

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VOIGTLÄNDER PROMINENT, 35 mm miniature camera, Synchro-Compur Shutter, fully synchronized up to 1/500 sec. Range finder with Automatic Coincidence Compensation (patented).
Range of new interchangeable high-efficiency lenses:
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Your local dealer will be glad to give you a demonstration.

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This panchromatic film gives you skin tones that are softer, warmer, more *alive*. Women's lips don't go black. Portraits are more flattering and lifelike. And you'll enjoy these pictures for a lifetime; they'll last—just like *any* fine print. The

POLAROID CORPORATION, CAMBRIDGE, MASS.

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Polaroid Land Camera and this new film give you more good pictures than you've ever gotten before. You can shoot in one-fourth the light you used to need.* Many pictures can be taken indoors without flashbulbs. This new film-camera combination provides a challenge to the skill and creativity of any photographer. The most advanced experiments in composition, lighting, and posing the subject can now be completed in 60 seconds. What's more, snapshots cost you less because you can make every shot count. You see what you've got on the spot; never need to cover yourself by taking extra pictures.

This new film is further proof that the Polaroid Land Camera is one of the most valuable cameras you can own. And it now costs far less than you'd expect: just 69.95—only 1.19 a week. Why put it off another summer? Look into a Polaroid Land Camera tomorrow—it can *make* your vacation.

*EXPOSURE INDEX 400 – ASA EQUIVALENT

NEW FILM'S WIDER LATITUDE COMPENSATES FOR ERRORS IN EXPOSURE

Of these three pictures only the center one was taken at the correct exposure. Ordinarily, the first shot would have been so overexposed you couldn't see the subject—and the third shot so underexposed it would have been black. But with Polaroid PolaPan Land Film all three pictures are satisfactory.

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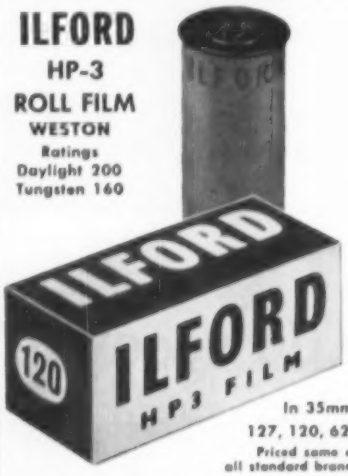

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Priced same as all standard brands

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tools and techniques

by Norman C. Lipton

A round-up of recent developments and significant trends

MPDFA Trade Show. Departing from our usual custom of reporting in this department new product trends at the annual spring trade show of the Master Photo Dealers and Finishers Association, we have incorporated the POPULAR PHOTOGRAPHY staff report on the 1955 event at Atlantic City in a separate article beginning on page 110 of this issue. As a matter of interest, the 1957 MPDFA Trade Show has been converted into an International Photographic Exposition to be put on at the Uline National Guard Armory in Washington, D.C. March 17 through 30—with the assistance and cosponsorship of the National Association of Photographic Manufacture, Inc., New York City, and the Photographers' Association of America, Milwaukee, Wis. All three organizations have agreed to forego their respective shows in 1957 to merge their efforts in the International Exposition.

The 1956 MPDFA Trade Show will be held at Chicago between March 5 and 9. The bi-annual international Photokina trade fair at Cologne, Germany, will take place from March 17 to 25, 1956.

Cine Projector Test. A high-quality "jiffy" test film has recently been developed by the Society of Motion Picture and Television Engineers in collaboration with the U.S. Navy for checking and demonstrating the performance of 16-mm cine projectors. Consisting of 135 feet of film which takes 4 minutes to run, the Jiffy requires no test instruments. It provides on-the-spot checks for pictures' steadiness, uniform picture brightness, faithful reproduction of wide-range music, flutter, correct sound-track guide adjustment, normal volume, sound focusing in both standard and non-standard emulsion positions, frequency response from 50 to 5,000 cycles, and dialogue intelligibility. The test film is available directly from SMPTE, 55 West 42nd Street, New York 36, N. Y. for $10.50 postpaid.

Revolutionary Sound Player. A new German sound-reproduction system, christened Tefifon, which permits up to 8 hours of prerecorded music, dialogue, or other auditory information to be played without interruption was demonstrated by the Audio-Master Corp., New York City, on April 12. The unerasable recording is engraved on a flexible vinylite band ½ inch wide and about 600 feet long loaded in an endless loop into a 6x5½-inch book-shaped cartridge weighing 8 ounces. Each band accommodates up to 82 engraved grooves which are traversed from top to bottom by the rigidly positioned stylus of the playback machine, which moves only in a vertical plane as it tracks the grooves. A micrometer scale on the playback machine permits the operator to select various portions of the record on the basis of a prior position plot. The

Flexible vinylite band of Tefifon record "book" is looped over spindle of playback unit where it is held in contact with fixed stylus which scans engraved record track as band travels by.

quality of the sound reproduction is claimed to be "comparable in quality to any Hi-Fi recording"—a statement that could not be contradicted on the basis of the selections we heard at the Press Preview. There was no hiss nor needle scratch apparent, and the quality impression we received was superb. Cost of the Tefifon playback machine will be under $100 and the "Sound Books" will be priced between $10 and $20 depending upon the length of the recording contained.

Image Definition. During the past few years, we have been watching a fundamental revolution in the criteria by which photographic image quality is evaluated. For decades, photographers were content to associate image sharpness with the resolving power of the photographic emulsion and the camera lens, and to a lesser extent with granularity and graininess. On October 15, 1951, the semi-annual convention of the Society of Motion Picture and Television Engineers at Hollywood, California, heard a research report that put a keen new perspective on the subject. This was the classic paper by G. C. Higgins and the late Loyd A. Jones of the Kodak Research Laboratories entitled, *The Nature and Evaluation of the Sharpness of Photographic Images*, which was subsequently published in the April 1952 *Journal of the SMPTE*. Here, the factor of "acutance" was introduced as a quantitative measure of sharpness—acutance being the average measured density variation across a knife-edge image. Resolving power was not eliminated as a contributing factor, for the paper concluded with the observation that "from the standpoint of sharpness, the important property of the image is the acutance of the edges of lines which are just resolved by the eye."

A subsequent paper by Robert N. Wolfe and Fred C. Eisen of the Kodak Research Laboratories—*Psychometric Evaluation of the Sharpness of Photographic Reproduc-*

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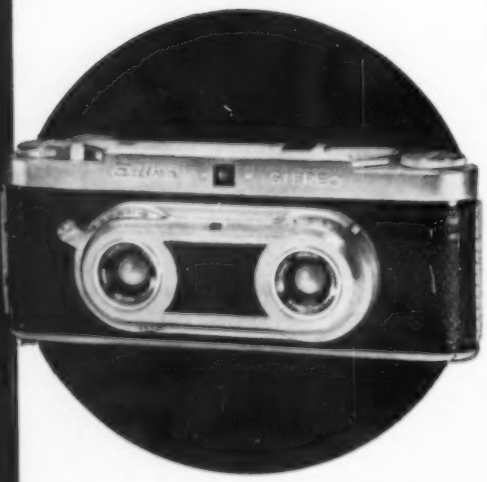

tion (Journal of the Optical Society of America, October 1953)—showed that there still remained much work to be done. For visual ratings of image sharpness developed in their study could not be satisfactorily correlated either with physically measured acutance or with resolving power.

Now, we have an extension of the work begun by Higgins and Jones in the recently issued Communication No. 1688 from the Kodak Research Laboratories—*The Relation of Definition to Sharpness and Resolving Power in a Photographic System (Journal of the Optical Society of America*, February 1955). This paper begins with a revision of the various terms used to express image quality which had previously been used loosely and synonymously. "Definition" is described as the quality aspect of a photograph associated subjectively with the clarity of detail; "sharpness" as the subjective impression received by an observer viewing the boundaries of well-resolved elements of detail, with "acutance" the objective correlate of sharpness. "Resolving power" is used in its customary sense—the ability of an observer to distinguish a specific number of closely spaced lines under adequate magnification.

A controlled procedure is given for relating subjective "psychometric" judgments of definition with measured acutance and resolving power values for two sets of test objects. The authors concluded that neither acutance nor resolving power correlated well with definition; however, when the resolving power exceeded the limit set by the eye, acutance correlated fairly well with definition. It was suggested that definition might be related to the two quantitatively measurable factors by multiplying acutance by an exponential factor of resolving power.

Whatever the complexities of the mathematics involved, this research has opened an avenue of clear thinking on the photographic quality demanded by the picture maker and picture user—if only by restating and redefining the terms we use. Yes, Bob Schwalberg, a grainy picture can be sharp.

Washless Processing Kit. The seriousness of Du Pont's bid for a place in the industrial sales market has been brought to our attention once again by a recent announcement from their Photo Products Department of a new "washless" rapid-processing chemicals kit. This outfit is intended for finishing oscillographic recording paper in continuous processing machines. The kit includes ready-to-mix chemicals for 1½ gallons of developer, 1 gallon of stop bath, and 2 gallons of stabilizer. The final water bath is eliminated by the use of the kit, and production capacity is increased 50 percent according to the manufacturer. The three components of the kit are sealed in metal puncture-opening cans and are available through seismograph and industrial photography dealers as Du Pont Lino-Writ rapid-processing chemicals.

Thanks to the recent development of "washless" stabilization processes for oscillograms, new simplified continuous-processing machinery has been developed

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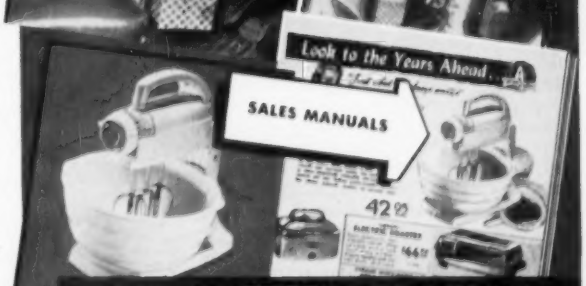

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for recording papers where 6 gallons of water represents the entire requirement, where no plumbing is necessary, and the total cost of the equipment is approximately $1,800. Regular processing machinery for ordinary photographic chemicals requires 6 to 8 gallons of water per minute for the wash bath and involves costs ranging from $8,000 to $20,000 for the basic equipment.

Du Pont claims that the unpleasant characteristic odor of stabilization processing chemicals has been masked out chemically in the development of their new kit, and also that staining has been substantially reduced. Although the image is not as permanent as results from conventional processing, their laboratory tests have indicated that unwashed oscillograms would remain legible for "several years." Should normal image permanence be desired, the unwashed oscillograms can be processed in a regular fixer and washing bath within "a reasonable time after rapid-processing is completed," according to Du Pont.

Burleigh Brooks Conference. A press and dealer luncheon was put on last April 6 by Burleigh Brooks, Inc., in honor of Horst Franke, principal owner of Franke & Heidecke, who make the Rollei camera line, and Hans Waegelein, export manager of Jos. Schneider, the renowned German lens firm. Following are some of the interesting facts disclosed by the guests in answer to questions from the audience:

1. The *f*/2.8 Schneider Xenotar and Zeiss Planar lenses supplied on the 2.8C Rolleiflex camera are both six-element objectives; the Planar has the first two elements in the front triplet cemented together whereas the Xenotar has the second and third elements of the front triplet cemented together. It is claimed that their performance is identical.

2. The front and back blades of *f*/3.5 Rollei camera shutters are bent at the tip to enable the blades to return to their normal closed position without fouling after the shutter has been operated.

3. German factory wages are only ⅕ as high as the average in the American photographic industry. . . Although the West German camera industry is working at full capacity, unemployment continues critical due to periodic influx of workers from the East Zone; there is, however, a critical shortage of foremen and skilled supervisory personnel which makes expansion of the Rollei plant or diversification of its output impractical. . . A price increase in Rollei cameras is inevitable when the prevailing 48-hour work week in Germany is reduced to 40. . . Twenty percent of all Schneider employees work at quality-control jobs.

4. The F. Deckel plant, which makes Synchro-Compur shutters, is gradually swinging over its entire production to the manufacture of LVS (light value scale) shutters with equidistant linear lens-opening and shutter-speed spacing and interlocked controls—mainly because this type of shutter can be built to operate with much closer tolerances than the

(*Continued on page* 135)

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THE CAMERA YOU WANT AT A PRICE YOU CAN PAY

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The GREATEST FACILITY of any Twin-Lens Reflex Camera . . . one hand operation. You hold the camera, focus the lens and release the shutter, all with the same hand. The other hand remains free to hold an off-the-camera flash gun, for better flash modeling. Shutter-reset lever, gives you split-second readiness to catch another of those fleeting pictures, 'just at the right psychological moment,' which is the success secret of top journalistic photographers.

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A PRECISION 4-ELEMENT ROKKOR f3.5 LENS that is fully coated and color corrected. Its 45mm focal length provides a wide angle of view and great depth of focus, allowing for greater versatility.

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Omega D-2 with Condensers	173.50 Cash or 17.35 Down
Omega D-2 with Colorhead	183.50 Cash or 18.35 Down
Automega D-3 w. Omegalite	197.50 Cash or 19.75 Down
Automega D-3 w. Conden's.	207.50 Cash or 20.75 Down
Automega D-3 w. Colorhead	217.50 Cash or 21.75 Down

for negatives 2¼" X 2¼" to 5" X 7"

Automega E-4 w. Conden's.	286.55 Cash or 28.65 Down
Automega E-4 w. Colorhead	301.55 Cash or 30.15 Down
Automega E-4 w. Omegalite	304.75 Cash or 30.47 Down

For sharper, surer pictures every time . . . try on 30 days' FREE trial, then buy the . . .

Extraordinary NEW Omega 120 Camera

• Supersensitive, pin-point accurate rangefinder • Retractable pressure plate for unvarying film flatness • New steady-grip design and oversized controls for touch-system operation • Automatic parallax compensating viewfinder • Automatic resetting action • 9 crisp 2¼" X 2¼" negatives on economical 120 roll film. With Omicron coated f/3.5 lens in Rapax X synch shutter **$239.50 Cash or $23.95 Down**; or with Omicron coated f/3.5 lens in Rapax full synch' shutter **$258.50 Cash or $25.85 Down.**

Selected Omega 120 Camera Accessories

6-shot Omegaflash	$49.50
Leather Compartment Case	32.50
Aluminium Carry-all Case	69.50

Shoot flash the modern way:

The MIGHTY LIGHT way!

Forget—forever—costly, clumsy flash bulbs!

Both 1955 MIGHTY LIGHT models are ultra-compact, inexpensive Speedlights . . . packing a "mighty" punch! Flash tube is rated for 100,000 flashes of 1/1000th sec. duration. The Battery Pack is about the size of 2 packs of playing cards (put end to end) and weighs just a little over a pound. It swings from your shoulder, or fits the base of your camera, with an accessory Battery Pack Holder ($4.95.) MIGHTY LIGHT STANDARD units have a Flash Head only 7" high, no thicker than a broom stick. Guide number is 160 for medium speed black and white film; 30 for Kodachrome. Batteries rated 2,000 flashes. MIGHTY LIGHT DELUXE units have a Flash Head just 4" longer than the standard units; and the overall weight is just 4 ozs. more; batteries are rated for 1,000 flashes. Light intensity with MIGHTY LIGHT DELUXE is, of course, substantially greater: One full f/ stop. Guide number for medium speed black and white film is 220; for Kodachrome — 45.

MIGHTY LIGHT Standard AC Unit	$54.95 Cash or $5.49 Down
MIGHTY LIGHT Standard BATTERY unit with batteries	69.95 Cash or 6.99 Down
MIGHTY LIGHT Standard COMBINATION unit (AC, Battery Pack, Rejuvenator)	89.95 Cash or 8.99 Down
MIGHTY LIGHT DELUXE AC Unit	69.95 Cash or 6.99 Down
MIGHTY LIGHT DELUXE BATTERY Unit with batteries	84.95 Cash or 8.49 Down
MIGHTY LIGHT DELUXE COMBINATION unit (AC, Battery Pack, Rejuvenator)	104.95 Cash or 10.49 Down

Famous MIGHTY LIGHT **Close-up Ring** replaces the regular flash tube. It's a patented ring light fitting around the lens of any camera. The "cold light" gives clear, sharp, shadowless close-up pictures. Physicians and dentists can use the **Close-up Ring** within inches of a patient's eyes without creating discomfort. The accessory **Close-up Ring** (used of course with your basic MIGHTY LIGHT) is priced at only **$39.95 Cash or $3.99 Down.**

Inquire also about MIGHTY LIGHT Slave Units!

Dowling's Fifth Avenue

30 Days FREE Trial

If for any reason you are not entirely satisfied with any purchase made from DOWLING'S Fifth Avenue, you may return the equipment. We will promptly refund all you paid, including any return transportation charges paid by you. Or, if YOU prefer, we will exchange the equipment for something which does satisfy you.

AURICON *Cine-Voice*

YOU can produce 16mm talking pictures the Hollywood way! While "shooting" the Cine-Voice camera simultaneously photographs a sound track along one film edge. The film cost, black and white or Kodachrome, is identical to silent types. Magnetic striping is not required, saving you both time and expense. Best of all the processed film plays **perfectly lip-synchronized** on any 16mm sound projector! Compact and easy to operate — either from house current or portable power pack — your Cine-Voice outfit is furnished **complete** as illustrated. Standard "C" mount lenses only are optional.

Write D. F. A. for FREE brochure!

Whether for home enjoyment or professional use, the Cine-Voice opens a new world of sound pictures . . . write for **free** Auricon brochure or order from DOWLING'S Fifth Avenue **today!**

Cine-Voice, Single Lens Model, **$695. Cash or $69.50 Down;**
Cine-Voice, 3 Lens Turret Model, **$784.50 Cash or $78.45 Down;**
Auricon-Pro, 200' capacity, **$1310. Cash or $131. Down;**
Auricon Super-1200, 1200' capacity, **$4662.15 Cash or $465.21 Down.**

Just out! All-new Auricon-Pro, 600' capacity, model **$1165. Cash or $116.50 Down.**

Schools, Churches and Industrial Users . . .

Please write Industrial Division, DOWLING'S Fifth Avenue for quotations and assistance with your individual problems . . . in sound movie-making or any phase of photography!

Add THAT DISTANT DETAIL . . . THAT EXCITING CLOSE-UP . . . TO YOUR *HOME MOVIES* with Elgeet

TELEPHOTO MOVIE LENSES

Far-off vistas, fast sports action, candid close-ups are all captured clearly and brilliantly with hard-coated, color-corrected Elgeet telephoto lenses. And there is an Elgeet lens designed for your camera, priced for your movie budget.

CUSTOM TELEPHOTO LENSES — 16mm

75mm (3") f/1.9, Focusing	$73.45 Cash or $7.34 Down
102mm (4") f/2.7, Focusing	88.95 Cash or 8.89 Down

CUSTOM TELEPHOTO LENSES — 8mm

38mm (1½") f/1.9, Focusing	49.00 Cash or 4.90 Down
38mm (1½") f/1.5, Focusing	68.35 Cash or 6.83 Down
38mm (1½") f/3.5, Fixed Focus	25.75 Cash or 2.57 Down

CINEMATAR TELEPHOTO LENSES — 8mm

38mm (1½") f/3.5, Fixed Focus	17.95 Cash or 1.79 Down
Telephoto attachment for Kodak Brownie, Bell & Howell 220 or 252	19.90 Cash or 1.99 Down

Write D. F. A. for complete FREE brochure of Elgeet 8mm and 16mm lenses for every movie making purpose! Special list of superb Elgeet "C" mount lenses suitable for Cine-Voice also free on request.

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only D.F.A. offers unique

LIFETIME GUARANTEE

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175 Fifth Avenue
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new 1955 *Diax IIa*

The low priced 35mm PRECISION Camera with COUPLED Rangefinder and INTERCHANGEABLE coated Lenses by SCHNEIDER, Germany!

- Handsome, modern design; rugged construction; extreme compactness—4½" X 3" X 3"—only 21 ozs. in weight!
- Equipped with high-quality SYNCHRO-COMPUR MX fully synchronized shutter, with Bulb, Time and speeds from 1 sec. to 1/500th sec. Built-in selftimer.

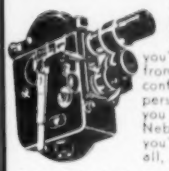
DIAX IIa with Isconar 50mm f/3.5 ..... $ 99.50 Cash or $ 9.95 Down
DIAX IIa with Xenar 50mm f/2.8 ..... 129.50 Cash or 12.95 Down
DIAX IIa with Xenon 50mm f/2.0 ..... 149.50 Cash or 14.95 Down

Accessory Lenses for DIAX IIa

Xenagon 35mm (wide angle) f/3.5 ..... $ 69.50 Cash or $ 6.97 Down
Isconar 85mm (telephoto) f/4.5 ..... 49.70 Cash or 4.97 Down
Tele-Xenar 90mm (telephoto) f/3.5 ..... 89.90 Cash or 8.99 Down
Tele-Xenar 135mm (telephoto) f/4.0 ..... 89.90 Cash or 8.99 Down

FREE illustrated DIAX IIa brochure on request, or place your order directly with DOWLING'S Fifth Avenue **today!**

IT'S ECONOMY TO START WITH THE FINEST!



Good movie equipment is a lifetime investment. Because of D. F. A.'s Easy Payment Plan, **you** can afford to own the best **now!** Wherever you may live, you'll find it pleasant to shop by mail from DOWLING'S Fifth Avenue. Quick, confidential credit arrangements plus fast, personalized service actually may bring us "closer" to you than your local store. Whether you live in Florida, Nebraska or California — or are a G. I. overseas — you'll find that D. F. A. delivers it quickly and, above all, delivers it "right!"

Bolex C-8 with Lytar coated f/2.5 lens ..... $89.95 Cash or $8.95 Down
Bolex C-8 with Lytar coated f/1.9 lens ..... 129.95 Cash or 12.95 Down
Bolex B-8 with Yvar coated f/2.8 lens ..... 119.50 Cash or 11.95 Down
Bolex B-8 with Lytar coated f/1.9 lens ..... 149.50 Cash or 14.95 Down
Bolex B-8 with Switar coated f/1.5 lens and Yvar 1½" (telephoto) coated f/2.8 lens ..... 274.50 Cash or 27.45 Down
Bolex H-8 Leader with Lytar coated f/1.9 lens ..... 259.50 Cash or 25.95 Down
Bolex H-8 De Luxe with Switar coated f/1.5 lens ..... 438.25 Cash or 43.82 Down
Bolex H-16 Leader with Lytar coated f/1.9 lens ..... 269.50 Cash or 26.95 Down
Bolex H-16 Supreme w/Lytar coated f/1.9 lens ..... 394.00 Cash or 34.90 Down
Bolex H-16 Supreme w/Switar coated f/1.4 lens ..... 510.00 Cash or 51.00 Down
Bolex H-16 Supreme with Switar coated f/1.4 lens, Switar 16mm coated f/1.8 lens, Switar 50mm coated f/1.4 lens & deluxe H-1 case complete ..... 779.00 Cash or 77.90 Down
Pan Cinor Zoom coated f/2.8 lens (for 8mm) ..... 219.50 Cash or 21.95 Down
Pan Cinor Zoom coated f/2.8 lens (for 16mm) ..... 349.50 Cash or 34.95 Down
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Bolex Electric Camera Drive ..... 89.50 Cash or 8.95 Down
Bolex Tripod ..... 69.50 Cash or 6.95 Down
Bolex Titler and Special Effects Kit ..... 299.50 Cash or 29.95 Down
Bolex M-8 Projector with case ..... 169.50 Cash or 16.95 Down
Bolex Combination 8mm-16mm Projector ..... 339.50 Cash or 33.95 Down

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America's Largest and Most Distinguished Mail Order Camera Specialists

• *Integrity* • *Reliability*

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NEW FME

Two-Speed, High-Fidelity TAPE RECORDER

- Dual speed: 3¾" and 7½" per second
- High-fidelity that will delight the most discriminating user
- Two-hour playing time
- Single knob control for quick, easy operation
- Neon record level indicator
- Radio-phono-TV input jack
- External speaker jack for large audiences, or for ear-phones
- Compact, light, attractively styled and sturdy two-toned case
- Plus a host of other features usually found only in machines selling for twice the price
- Foot pedal stop switch available as accessory

only $139.95 Cash or

Only $13.95 DOWN

The new **Nikon** S2

with all the features you want in a 35mm camera!

Just Released

- Life-size, combined range-viewfinder
- Luminous composing frame in finder
- Rapid, single stroke film transport
- Hi-speed film rewind
- 12 shutter speeds from 1 sec. to 1/1000th sec., plus time and bulb
- Positive synchro selector for all flash bulbs, all shutter speeds; also for electronic flash
- Removable back and fixed take-up spool for easy loading
- Tripod socket built into camera body — avoiding undue strain on base
- Standard PC flash terminal with clip lock
- ¼-turn bayonet lens mount for instant lens interchangeability
- Finger-tip controls all conveniently located on top of camera

NIKON S-2 with famous Nikkor coated f/2.0 lens $299.50 Cash or $29.95 Down; or with famous and ultra-fast Nikkor coated f/1.4 lens $345. Cash or $34.50 Down. Eveready carrying case $10.50.

Nikkor Wide Angle and Telephoto Lenses

28mm f/3.5 ..... $149.50 Cash or $14.95 Down
35mm f/3.5 ..... 89.50 Cash or 8.95 Down
35mm f/2.5 ..... 139.50 Cash or 13.95 Down
85mm f/2.0 with sunshade ..... 175.00 Cash or 17.50 Down
85mm f/1.5 with sunshade ..... 299.50 Cash or 29.95 Down
105mm f/2.5 with sunshade ..... 152.50 Cash or 15.25 Down
135mm f/3.5 with sunshade ..... 135.00 Cash or 13.50 Down

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Nikkor 135mm f/3.5 for Exakta ..... 145.00 Cash or 14.50 Down

Write D. F. A. **today** for FREE Nikon brochure!

MORE of D.F.A.'s 6 Page Guide to the *best* in Photographic Equipment!

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Visit our Skyline Suite to say "Hello!"

Hitch your wagon to the star! . . .
1955 CONTAX II-A and III-A

ZEISS IKON

Single-window for rangefinder and viewfinder, metal focal plane shutter, removable back, bayonet lens mount, delayed action release, full built-in flash synchronization are just a few of the reasons for the acknowledged leadership of CONTAX! Contax II-A with Tessar coated f/3.5 lens **$261. Cash or $26.10 Down**; with Sonnar coated f/2.0 lens **$345. Cash or $34.50 Down**; or with Sonnar coated f/1.5 lens **$374. Cash or $37.40 Down.** For Contax III-A (with built-in exposure meter) add **$38. Cash or $3.80 Down.**

Selected Contax Lenses and Accessories

Biogon 21mm f/4.5	$249.00 Cash or $24.90 Down
Biogon 35mm f/2.8	183.00 Cash or 18.30 Down
Planar 35mm f/3.5	102.00 Cash or 10.20 Down
Triotar 85mm f/4.0	106.00 Cash or 10.60 Down
Sonnar 85mm f/2.0	229.00 Cash or 22.90 Down
Sonnar 135mm f/4.0	146.00 Cash or 14.60 Down
Stereotar C, 35mm f/3.5's	159.00 Cash or 15.90 Down
Stereo Prism Attachment	37.00 Cash or 3.70 Down
Stereo Viewfinder	10.00 Cash or 1.00 Down

1955 ▲ IKOFLEX

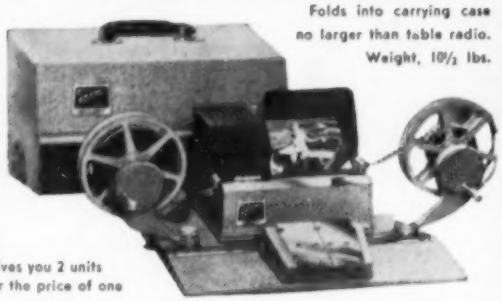
Ikoflex I-A with Novar coated f/3.5 lens in Prontor full synch' shutter **$76. Cash or $7.60 Down; Ikoflex I-A** with Tessar coated f/3.5 lens in Prontor full synch' shutter **$96. Cash or $9.60 Down**; and the superlative **Automatic Ikoflex II-A** with Tessar coated f/3.5 lens in Synchro-Compur MX shutter **$126. Cash or $12.60 Down.**

1955 CONTAFLEX

The gem of all 35mm Single Lens Reflex cameras! Ground-glass eye-level focusing is combined with split image rangefinder. Superb Tessar 45mm coated f/2.8 lens, with Synchro-Compur MX shutter and fully automatic diaphragm. Contaflex I **$169. Cash or $16.90 Down.**

CRAIG PROJECTO-EDITOR

Folds into carrying case no larger than table radio. Weight, 10½ lbs.



Gives you 2 units for the price of one

NEW COMBINATION TABLE-TOP MOVIE VIEWER AND COMPLETE EDITOR — Large (3¼ x 4¼ in.) brilliant screen shows action movies without darkening room. Ideal size for family groups. Create slow or fast motion effects by varying speed of take-up reel. Re-run scenes without waiting for end of reel. Stop film to examine individual frames with complete safety to film. Built-in frame marker, splicer and film cement give quick way to cut out poor sections — repair film — arrange movies in story-telling sequence. Has ground and polished condenser lens, straight-through film threading, rotating optical prism shutter and flat field projection lens. Complete with carrying case, 8 mm. or 16 mm. model, **$79.50 Cash or $7.95 DOWN**

A Cordial Invitation...

No doubt about the ease of shopping by mail! . . . But it is nice to meet personally our mail order friends. Whether to say "hello" or to talk cameras, you'll find a warm welcome! Our Mail Order Division is on the 20th Floor (Skyline Suite) of that famous landmark, the Flatiron Building . . . The panorama view of New York is most photogenic. When you are in our home town, please do stop in!

MORE POWER! MORE LIGHT! PERFECT PERFORMANCE!

Dormitzer SYNCTRON

with the new "million prism" reflectors

New 1955 DB-SM-1 Synctron Dry Battery Unit

- Conservative color **guide number of 45**; fast black and white—220.
- **New high-efficiency GE118 flash tube.**
- **Light output**—2650 lumen seconds.
- **Weight**—only 5 lbs.
- **Size**—only 8½" X 2¼" X 6½".
- **Recycling time**—5 to 8 seconds.
- **Flash duration**—1/2000th second.
- **Batteries**—expectancy of 500 flashes; replacement cost only $4.25!

Complete price, including cord and batteries . . .
$118.95 Cash or only $11.59 DOWN

Other Powerful Dormitzer Synctron Units

Model 100—Professional	$237.00 Cash or $23.70 Down
Model 200BC—Super Pro	275.00 Cash or 27.50 Down
Model 208BC—Super Candid	190.00 Cash or 19.00 Down
Model 215—Economy (A.C. only)	725.00 Cash or 72.50 Down
Model 223—Studio Light	495.00 Cash or 49.50 Down

(Prices indicated include battery and charger, except of course with A.C. Model 215.)
FREE Dormitzer Synctron brochure is yours simply by writing to DOWLING'S Fifth Avenue!

UHLER Cine Printers

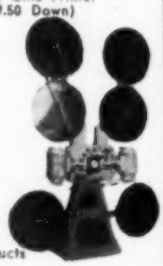
. . . the standard of perfection!

Uhler 16mm Sound Cine Printer! (illustrated)

Makes contact prints of both sound and silent pictures in black and white or color. Prints picture and sound at the same time. 400' capacity; beautiful precision finish. Copies of all your favorite films can be made at about one-quarter the cost of the original. It's easy and lots of fun to make your own prints at home. Titles may be made with double exposed motion background as shown in theatres. Complete instructions are furnished with each machine.

$125. Cash or $12.50 Down
◀ (Uhler 16mm Silent Cine Printer **$95. Cash or $9.50 Down**)

Uhler Combination 8mm and 16mm Continuous Printer ▶ (illustrated)



For professional or amateur movie makers, laboratories, schools and technicians—where the highest quality prints are required. Black and white or color; single or double system sound — film is run through the machine once only. 1200' capacity. Printing speed up to 1600' per hour. Lamps are air-cooled. Built-in filter holder for color film printing.

$685. Cash or $68.50 Down

Other Uhler Precision Cine Products

Combination 35mm Continuous Printer for Sound or Silent Pictures (capacity — 6-1200' feed and take-up discs)	$1145.00 Cash or $114.50 Down
Reduction and Enlarging Printer for 8mm and 16mm (1200' capacity)	1056.88 Cash or 105.68 Down
Reduction and Enlarging Printer for 16mm and 35mm (capacity — 4-1200' feed and take-up discs)	2475.00 Cash or 247.50 Down

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1955 LORDOMAT

Amazing new precision "35" from Wetzlar, Germany!

- **Interchangeable lenses, all rangefinder coupled**
- **Rapid wind lever**
- Viewfinder and rangefinder in single window
- Built-in self-timer
- Double exposure prevention mechanism
- M-X synchro shutter
- Speeds from 1 second to 1/300th second
- Complete with 50mm f/2.8 Lordon coated lens with click stops

Only $89.50 Cash or . . .

$8.95 DOWN

Lordomat Accessories

(All available from D.F.A. with 10% Down Payment)

Lordonar 35mm coated f/3.5 wide angle lens	$55.00
Telorden 90mm coated f/4.5 telephoto lens	64.50
Combination viewfinder for both lenses	12.50
Deluxe leather eveready case	9.95
Flashgun	7.95

1965* AUTOMATIC Exakta VX

*Yes, 1965! This is not a typographical error. It is a way of emphasizing the important giant steps forward taken by the new AUTOMATIC EXAKTA VX. Previous Exakta VX models (now usually described as "discontinued") were fine instruments. But now—almost all at once—Exakta photography has grown 10 years with the advent of the **new**, superb 1955 AUTOMATIC EXAKTA VX. Here are a few of its distinctive up-to-the-minute features . . .

• New safe, positive film advance • Improved shutter cocking mechanism • New exposure counter • Redesigned, easy operating, rewind • New shutter lock to prevent accidental exposures • New shutter mechanism • And—above all—a series of amazing new AUTOMATIC lenses: **One** pressure of the release button automatically closes down the lens diaphragm to a preset aperture and releases the shutter at the same time!

AUTOMATIC EXAKTA VX with automatic coated 50mm lens indicated below	Waist-level viewfinder Total	Waist-level viewfinder 10% Down	Split-image Pentaprism Total	Split-image Pentaprism 10% Down
f/2.8 Isco Westanar	$249.50	$24.95	$296.50	$29.65
f/2.0 Isco Westagon	289.50	28.95	336.50	33.65
f/2.0 Zeiss Biotar (illus.)	345.00	34.50	392.00	39.20
f/1.9 Schneider Xenon	351.70	35.17	398.70	39.87

Streamlined, pocket-size version of Exakta

SPECIAL LIMITED OFFER—EXA COMBINATION OUTFIT AT A $30. SAVING! Exa camera with 50mm f/2.8 Isco Westar lens, 105mm f/4.5 telephoto lens, BC flashgun, and leather eveready camera case (regularly $159.40) at special complete price **$129.40 Cash or $12.94 Down!**

Exakta 66 Unsurpassed

2¼ X 2¼ single-lens, reflex

Complete with 80mm Zeiss Tessar coated f/2.8 lens in preset diaphragm **$319.50 Cash or $31.95 Down.**

FREE Postage!

You'll find this so convenient and economical too. No need for you to estimate shipping costs. D. F. A. pays all regular shipping and insurance expenses . . . and guarantees safe arrival of your equipment. This includes A.P.O., F.P.O. and export orders! Upon request, air shipments gladly made; and you'll be billed just for the slight extra cost!

1955 NOVOFLEX

From ultra long-range to close-ups and copying — easily, inexpensively!

Novoflex Reflex Housing

. . . converts Leica, Canon, Contax, Nikon etc. to single lens reflex camera:

For Leica and Canon	$110.00 Cash or $11.00 Down
For Contax and Nikon	133.00 Cash or 13.30 Down

Novoflex Reflex Housing with Prism Observascope:

For Leica and Canon	140.00 Cash or 14.40 Down
For Contax and Nikon	164.00 Cash or 16.40 Down

Novoflex Bellows Attachment. . .

light-weight, precisioned gear driven, engraved exposure factors for 50mm and 105mm lenses:

For Exakta and Exa	34.50 Cash or 3.45 Down*
For Praktiflex, Contax S or D and Pentacon	34.50 Cash or 3.45 Down*
For Contax, Leica, Nikon and Canon (w/ Reflex Housing)	34.50 Cash or 3.45 Down
For 2¼ X 2¼ Single Lens Reflexes	72.50 Cash or 7.25 Down

*For this group, Bellows Attachment may be furnished on a double track for **$25. Cash or $2.50 Down additional.**

Novoflex Accessories:

400mm f/5.6 Novoflex telephoto lens (used with Bellows Attachment)	189.00 Cash or 18.90 Down
Case for 400mm lens	22.50 Cash or 2.25 Down
Combination case for Reflex Housing, Bellows and 400mm lens	26.95 Cash or 2.69 Down

1955 Konica II

One of the Proudest Photographic and Optical Achievements of Postwar Japan!

This exceptional camera performs like a great symphony orchestra. Its splendid design is such that each component part is just "right." And the result is a smoothly performing whole instrument, fully responsive to any photographic task to which it may be assigned . . .

- All controls are visible from the top—operating position
- Single-window range-view finder, with an image unique for size, clarity and brilliance
- World-famous Konirapid-S shutter with nine speeds from 1 sec. to 1/500th sec.
- Built-in flash synchronization
- Brilliant 5-element Hexanon coated f/2.8 lens
- Above all, here is a camera that handles and "feels" just as it should!

NOW only $89.75 Cash or $8.97 DOWN!

Leather eveready case for KONICA II	$9.75
Autoup (20" to 40")	9.00
Sunshade	1.75

It "pays" to order your new KONICA II **directly** from DOWLING'S Fifth Avenue. Your order will be expertly packed for shipment, with safe arrival guaranteed. Take advantage of our famous Air Service, if time is short. Chances are this will make your new KONICA II not more than a day away—whether you live in Tacoma or Tallahassee! Yes, we are usually "closer" than a local store. Most important: We have it in stock; and your purchase is backed by our unconditional guarantee of satisfaction, or your money back within 30 days. Always shop the **easy** way—the D. F. A. way—by mail! It's a **good** habit!

TURN THE PAGE FOR **STILL** MORE EXCEPTIONAL PHOTOGRAPHIC EQUIPMENT BY DOWLING'S FIFTH AVENUE. YOU'LL FIND A HANDY COUPON FOR ORDERING!

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NEW YORK 10, N. Y.

wanted now TRADE-INS

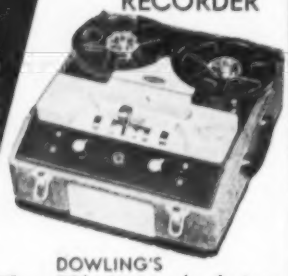
Mail YOUR trade-in TODAY to D.F.A. for an unprecedented allowance! Your trade-in may be applied as down payment!

Dramatic New Approach to Tape Recording

THE SUPERB **Pentron** PORTABLE TAPE RECORDER

With Exclusive **MONOMATIC** CONTROL

MONOMATIC is a single knob control providing instant selection of Record or Play, in either 7½ or 3¾ tape speeds, as well as Fast Forward and Fast Rewind. Any position may be selected by a flick of the finger, in either tape speed.



Model CT-1
Dual Track Dual Speed
$129.50
Cash or only $12.95 Down

- Plays in any position!
- Simplest to operate
- High fidelity performance
- 2-speed, 2-hour operation

DOWLING'S Fifth Avenue also features Pentron Multi-speed Portable Tape Recorder.
$189.50 Cash or $18.95 Down
Pentron 3 Speaker High Fidelity Tape Recorder for life-like dimensional presence.
$225.00 Cash or $22.50 Down

Hi-fi enthusiasts! Write D. F. A. for free brochure on Pentron low cost high fidelity tape components for portable use and custom installations!

Now YOU can ADD SOUND to your silent movies at an amazingly low price!

CINESONE
Magnetic Sound Adapter Unit

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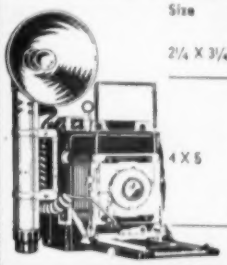

Size	Coated Lens in Shutter	Speed Graphic	Crown Graphic
2¼ X 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338.	$300.
	105mm Tessar f/3.5	355.	306.
	105mm Ektar f/3.7	343.	294.
4 X 5	135mm Schneider Xenar f/4.7	337.	291.
	135mm Optar f/4.7	354.	305.
	127mm Ektar f/4.7	354.	305.
	135mm Tessar f/4.5	370.	326.
	150mm Schneider Xenar f/4.5	381.	334.
	150mm Tessar f/4.5	381.	334.
	152mm Ektar f/4.5	371.	327.
	135mm Schneider Xenar f/3.8	388.	344.
	150mm Tessar f/3.5	448.	400.
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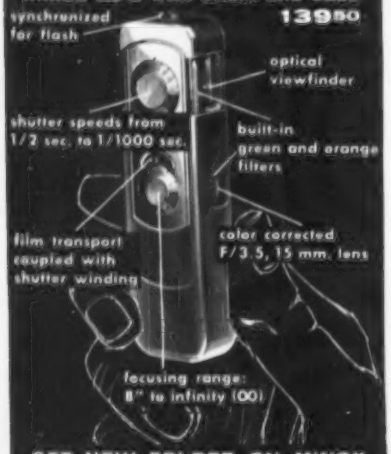

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Nice, But Not Our Type

Several years ago, I read that a pamphlet called *Pictures* was in the market for snapshots and was interested in all subjects, offering five dollars for each acceptable print. Because I had just won a weekly prize in a newspaper amateur snapshot contest, I was filled with my own importance. I didn't bother to get a copy of the publication but went ahead and made several 5x7 enlargements, remembering, of course, to write on the back of each the type of camera and film used and where and when each was taken, and then mailed them off to Rochester, N. Y. Some weeks later, I received a letter saying one of my pictures had come very close to acceptance. However, it seemed I had not quite gotten the feel of the publication. I was asked to study the snapshots in *Pictures* and send in any that I thought would be more suitable. They even went on to say that some of their best contributors had tried several times before a picture clicked. Then I realized my boner. I had submitted pictures taken on Ansco film to an Eastman publication.

—*Gloria Gebest, Bronxville, N. Y.*

Hidden Flash

The very day after I got my camera with flash attachment, a friend asked me to shoot some pictures at his parents' 50th wedding anniversary party. I agreed and spent several hours shooting at his home, making quite a display of the advantages of a camera with flash. I experienced quite a surprise in the darkroom when I pulled the films out of the fixer. Most of the negatives were excellent but two of the main ones, showing the whole crowd posed around the anniversary couple, were badly underexposed and unprintable. It took a lot of thinking before I realized the cause of the unexpected failure. Because the living room of my friend's home was too small to allow me to get the whole crowd in, I had to back up to the adjoining bedroom and shoot through the door frame. Unfortunately, it had not occurred to me that, since the flashgun was attached to the side of the camera, its whole light output was shot against the bedroom wall, thus leaving the anxious-to-get-in-the-picture people in the shadow of the door frame.

—*Robert Koci, Quebec, Canada*

Mr. Monobath

While a student at my state university, I supplemented my regular working-my-way-through-college job with some night work for the university photographer. My first task was to mix a large 13-gal carboyful of developer. I was thoroughly familiar with procedures and scales; the formulas and chemicals were provided. A stock of carboys containing distilled water was pointed out to me for use in the solution. The mixing went without any trouble, excepting that there was an endless stirring necessary to get the chemicals dissolved. It was well after midnight when I finally corked the bottle of developer and left.

The next night, I was given some 16-mm movie film to develop. The film subject was scientific and had been taken by the dean of the natural science department. I was told that it would be very difficult to replace and to use much care. I could hardly believe it when the film turned out blank after its trip through the solutions. The dean was supposedly a skillful photographer, so some very quick tests were made on the solutions, which indicated that the developer was at fault. I was asked to show exactly what I had done when mixing the developer and had to point out exactly where I got each chemical. When I pointed to the stock of distilled water, the mystery was solved. The distilled water and fixing solutions, both in identical bottles and both unlabeled, were kept on the same shelf. They were separated only by an imaginary line, known to everyone but me. At that time, a single solution combination of developer and fixer was much advertised (and called "Monobath"). After this debacle, for which I was not entirely at fault, I acquired the nickname, "Monobath," and carried it for some time after. All solutions in the lab were promptly marked with the most conspicuous, readable labels it was possible to buy.

—*Roland Loewen, Chattanooga, Tenn.*

Backfire

As an employee of the photographic department of a local corporation, I was asked to take a picture of a long aisle passing through an area packed to the ceiling with numberless cartons of materials. There was an office at the end of the aisle and in order to include its details I stationed an assistant there with orders to fire a flashbulb when I gave the word.

I made a forty-second time exposure of the aisle and the stacked cartons at the ends of its cross-aisles then shouted to my assistant, "FIRE!", thus including the office.

However, there was the unexpected clatter of running feet, followed by a faint whir-r-r-r, and before I had finished packing up my equipment fire engines started to arrive.

It seems employees working in the side aisles, well briefed during a recent fire-prevention program, had obeyed the admonition, "Pull a Fire Box—FIRST," before investigating my signal to the assistant.

Now I use the word "CONTACT" no matter where I am.

—*B. J. Livingston, Detroit, Mich.*

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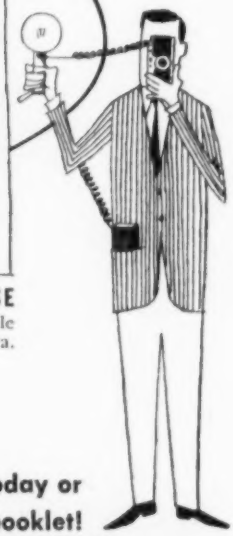

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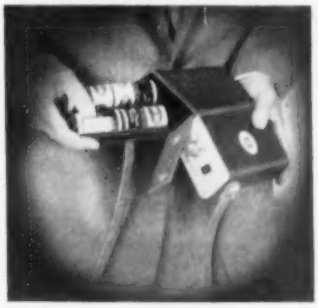

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stereo today

by Robert L. McIntyre

Stereo and Ektachrome

The two new Kodak color films, 35-mm Ektachrome Daylight and Type F, have made a big splash among slide makers. Their general characteristics have been described fully (See POPULAR PHOTOGRAPHY, May, 1955, issue.—ED.). We won't retrace this broad discussion, but we have received so many inquiries we feel we should report on these new films as they apply to stereo photography. There are points both for and against them.

Speed is their most spectacular advantage. Basic exposure for the daylight-type film in sunlight is 1/50 at f/11, which is a stop and a half faster than the old standard of 1/50 at f/6.3 for Kodachrome. If you're afraid of the camera shakes, or want to catch moving subjects, you can make it 1/150 at f/6.3 instead. Either way, you can get pictures that should be sharper. And sharpness is a cardinal factor in stereo.

This gain is tempered by the somewhat lower resolving power of the new films themselves—90 lines per mm as compared with 110 lines per mm for Kodachrome. When seen in the hand viewer, pictures seem slightly less sharp and the grain structure of the emulsion itself is visible. These factors are not noticeable when the same slides are projected.

Perhaps more important than speed, from the stereo photographer's point of view, is the increased exposure latitude of 35-mm Ektachrome as compared with Kodachrome. Your exposures don't have to be right on the button to give you acceptable results. More detail appears in the highlights and shadows of scenes that have a wide brightness range. This difference is subtle but significant.

Our eyes are adaptable to such a great brightness range that we seldom fail to see into dark shadows or to register detail in the highlights of scenes. When pictures fail to record detail in these areas, stereo loses some of its realism. Ektachrome sees deeper into the shadows and into brighter highlights, which represents a gain in realism.

No film records colors with perfect accuracy. Each one has its own characteristic errors. It happens that Ektachrome leans in the most popular direction—it is likely to make scenes appear somewhat warmer in hue than they are to the eye. This isn't necessarily more real than the results you have become accustomed to getting with Kodachrome, but most fans find it more pleasing. Advanced photographers have been using Skylight filters on regular scenes in sunlight, just to gain a similar, pinkish hue. With Ektachrome the slight warmth is built into the film itself.

Mounting Available

The basic change in processing makes Ektachrome a bit more complicated to use than Kodachrome used to be. You paid for processing and mounting (by buying stereo loads) at the time the film was purchased. There was nothing to do but send the film to the laboratory to have it developed and returned. Ektachrome is not processed by Kodak, so you have to make your own arrangements for developing and mounting by one of the independent laboratories. This is easiest to handle, in most cases, by dropping off the film at your local camera store.

Pavelle, Inc., of New York has Ektachrome processing machines in operation and has announced a mounting service available through its 5,000 dealers. The usual processing charge is $1.25 for a 20-exposure roll of 35-mm film which takes 16 standard stereo pairs. These pairs will be mounted at the laboratory for an additional charge of $1.20 per roll.

All these factors must be considered in evaluating Ektachrome. It's our guess that it will become popular with fans who find speed important in the pictures they like to take and who are willing to give up some of the sharpness and brittle contrast to which they have become accustomed in Kodachrome.

Nose Makes News

Stereo views of natural wonders like Pike's Peak and the Grand Canyon have long been available in View-Master picture reels. Now another phenomenon has joined their ranks. It's Jimmy Durante's nose. The comedian is one of 21 television stars who are included in a new series of 3-D pictures just released by Sawyer's, Inc. You can see Liberace by his famous piano-shaped swimming pool, sad Ed Sullivan studying a script, and pretty Ann Baxter relaxing between takes in her Corliss Archer series. There also are stereo shots of Connie Haines, Danny Thomas, Donald O'Connor, Eve Arden, Pinky Lee, Groucho, Red Skelton, Art Linkletter, and others. This is the first time that TV personalities have been selected for the reels, which usually show places of interest rather than people.

Wallet-Size Prints

A new line of prints from stereo transparencies has been announced by Pavelle Color, Inc. What makes them different is that you can see them in stereo. The two pictures of each pair are printed side by side, in alignment, by projection from stereo slides in standard mounts. For viewing there is a pair of spectacles with prismatic lenses, just like the ones that made their debut in conjunction with Morgan & Lester's *Stereo Realist Manual.* A holder supports the double print and spectacles in proper relationship for viewing, but after a little practice you can learn to handle them more easily without the device.

Each picture of the pairs is slightly less than 2½ inches wide and about 2¾ inches high. If you want them merely for carrying as single prints, they are easily cut apart to fit your wallet.—

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LOOK FOR THIS DISPLAY AT THESE AND OTHER LEADING PHOTO SUPPLY DEALERS

CALIFORNIA
Los Angeles, Garden & Williams
Petaluma, The Camera Corner
San Francisco, Brooks Cameras & Supplies

COLORADO
Trinidad, De Luze Studio & Camera Shop

CONNECTICUT
Bridgeport, Jay James
Bridgeport, Photo Sales
Manchester, Welbon Drug Co.
New Britain, Leonards
New Haven, Temple Camera
New London, A. B. C. Film
Putnam, Grube Camera
Stamford, Camera Craft Stores
West Haven, New Haven Camera

DELAWARE
Dover, James H. Gentry
Wilmington, Lincoln Camera Shop
Wilmington, Photo Center
Wilmington, Shan's

DISTRICT OF COLUMBIA
Washington, Hicks C.Q.S.
Washington, Sommer Camera

FLORIDA
Ft. Lauderdale, A. J. Snap Shop
Ft. Lauderdale, Schwarm's Photo
Miami, Jackson Camera Store

GEORGIA
Atlanta, Frye's Foto Shop
Valdosta, Bookmans Studio

ILLINOIS
Bloomington, United Photo Shop
Champaign, Strauch Campus Cam.
Chicago, Ambers Camera Co.
Chicago, Austin Photo
Chicago, Broadway Photo Sales
Chicago, Central Camera Co.,
Chicago, Conway Camera
Chicago, Foto Tek
Chicago, P. K. Photo Supply
Chicago, E. J. Pollak
Chicago, Radium Camera Shop
Chicago, Standard Photo Supply
Chicago, United Camera
Chicago, Norman Willets
Decatur, Haines & Essick Co.
Decatur, Pfiles Camera Co.
Des Plaines, Photo Service
Jacksonville, Camera Shop
Moweaqua, Jay's Photo Shop
Oak Park, Austin Camera

INDIANA
Griffith, Griffith Sport & Camera
Kokomo, Kokomo Camera Shop

IOWA
Des Moines, Frye Studios
Fort Dodge, Rossow Photo Shop

KANSAS
Salanta, Shouse Pharmacy

KENTUCKY
Louisville, W. D. Gatchel & Sons

LOUISIANA
Shreveport, Dee's Photo Supply

MAINE
Portland, Bicknell Photo

MARYLAND
Baltimore, Parkville Photo
Chevy Chase, Vicar Camera Shop

MASSACHUSETTS
Attleboro, The Camera Shop
Boston, Bay State Camera
Boston, Beacon Camera
Boston, Copley Camera
Boston, School Street Camera
Brockton, E. C. Hall Co.
Cambridge, Claus Gelotte, Inc.
Fitchburg, Art Photo
Fitchburg, Fitts Photo Shops
Framingham, Fitts Photo
Gardner, Leslie's
Leominster, Fitts Photo Shops
Lowell, Fitts Photo Shops
Lynn, Sunform Camera Shop
Malden, Davis Camera Supply
Newton Corner, Fitts Photo Shops
North Abington, Bartolomme Stu.
Salem, Camera Supply Shop
Shoppers World, Fitts Photo Shops
Springfield, Bloom's Photo Supply

MICHIGAN
Detroit, Detroit Camera Shop
Detroit, Garrick Photo Supply
Flint, Harry's Camera Shop
Jackson, U.S. Trading Store
St. Joseph, Neuhterlein Cameras

MINNESOTA
Rochester, Camera Shop

MISSOURI
Hannibal, The Camera Shop
St. Louis, Stanley Photo
Springfield, Ozarks Camera Shop

NEW JERSEY
Bayonne, Lenns Foto Shop
Bellville, Belleville Camera
Bergenfield, Peter's Camera
Bloomfield, Camera Craft Stores
Chatham, General Photo Products
Clifton, Clifton Camera
East Orange, County Photo
Elizabeth, Elizabethport Photo
Fairlawn, Camera Time
Hackensack, Home Movies
Hackensack, Rigers
Hammonton, Olivia Camera Shop
Irvington, Camera Craft Stores
Irvington, Kraftc Kamera
Livingston, Livingston Camera
Lyndhurst, Camera House
Millburn, Millburn Camera
Millville, Steelman's Photo Supply
Morristown, Camera Craft Stores
New Brunswick, Freese Camera
Newark, Schaeffer and Co.
Orange, Camera Craft Stores
Passaic, Adrians Photo Supply
Passaic, Camera Craft Stores
Passaic, Nowatka Company
Red Bank, Dorns Photo Supply
Red Bank, Pages Photo Service
Red Bank, Parlin Photo
Ridgefield, County Photo
Ridgewood, Count Photo
Ridgewood, Jay Stout
South Orange, Village Camera
Toms River, Parlin Photo Service
Trenton, Brothers Camera
Union, Union Camera
Union City, City Camera
Union City, Tobiera
West New York, Levys
Westfield, Westfield Studio
Woodbury, The Hobby Shop

NEW YORK
Amityville, L. I., Berger Bros.
Astoria, L. I., A. C. Camera
Bellmore, Grishkot Photo
Binghamton, Tuthill's
Bronx, Camera Craft Stores
Bronx, Park Camera
Bronxville, Bronxville Camera
Brooklyn, Boro Hall Camera
Brooklyn, Boro Park Camera
Brooklyn, Ho Lee Photo
Brooklyn, Utica Camera Exchange
Buffalo, Western New York Camera
Cortland, Cortland Camera Shop
Freeport, Eastern Camera Exchange

NEW YORK (Continued)
Freeport, L. I., Groves Foto
Garden City, L. I., Spies Camera
Glen Cove, Glen Camera Mart
Hempstead, L. I., Albee Camera
Hempstead, L. I., Cam-Ber
Hempstead, L. I., Eastern Camera
Howlitt, L. I., Irben Photo
Hicksville, Eastern Camera
Larchmont, Larchmont Photo
Levittown, Sirkins Camera
Long Beach, Eastern Camera
Long Island City, Monell Camera
Lynbrook, L. I., Arnee Camera
Lynbrook, Eastern Camera
Malverne, Bay Camera
Mineola, L. I., Fraserie Pharmacy
Mt. Vernon, Camera Craft Stores
Mt. Vernon, Town Fotoshop
Mt. Vernon, Town Photo
New Hyde Park, L. I., National
New Rochelle, Camera Craft Stores
New York City, Allied Camera
New York City, B. Arkin
New York City, Abe Cohen's
New York City, W. C. Cullen
New York City, Ednor Photocopy
New York City, Fotoshop
New York City, Haber and Fink
New York City, Medo Supply Corp.
New York City, Mintflim
New York City, New York Camera
New York City, Peerless Camera
New York City, Penn Camera
New York City, Ritz Camera
New York City, Royal Tone
New York City, United Camera
New York City, Willoughbys
Northport, L. I., Northport Camera
Pearl River, Boulons
Perry, Bassett's Art Shop
Port Washington, L. I., Eastern
Rochester, La Beau Photo
Rockville Center, L. I., Lawrences
Rockville Center, L. I., Rockville
Rye, Rye Camera
Syracuse, Wainwright Photo
Tarrytown, Gilton Camera Co.
Troy, Troy Camera
Tuckahoe, Tuckahoe Camera
White Plains, Camera Corner
White Plains, Camera Craft Stores
White Plains, Camera Shop
White Plains, Colortone Camera

OHIO
Canton, Camera Center
Cincinnati, Eastern Hills Camera
Cincinnati, Quality Photo Shop
Cleveland, The Dodd Company
Columbus, Dodd and Company
Columbus, Young's Pharmacy
Dayton, Malone Camera Stores
Mt. Vernon, Bill's Photo Shop
Sandusky, Gainsborough Studio
Springfield, Springfield Camera
Steubenville, Nosset Studio

PENNSYLVANIA
Allentown, M. S. Young
Altoona, The Camera Shop
Bethlehem, Dennis Photo Service
Easton, Sterling Home Movie
Ellwood City, Mc Ilroy Camera
Erie, Erie Camera Center, Inc.
Erie, Lynch's Camera Shop
Gettysburg, Dave's Photo Supply
Johnstown, The Camera Shop
Levittown, Larson Camera Shops
New Castle, The Camera Center
New Castle, Warners Photo
Norristown, Ken Hoser
Philadelphia, Oscar H. Hirt
Philadelphia, Klein & Goodman
Philadelphia, Mid City Camera
Philadelphia, Paramount Photo
Philadelphia, Rosenfields
Philadelphia, Webb & Company
Pittsburgh, Union Supply Co.
Washington, Gibson's Photo Center

SOUTH DAKOTA
Mitchell, Jim Beste Drugs

TENNESSEE
Nashville, Melrose Camera Center

TEXAS
Westaco, Badger Studio

VIRGINIA
Charlottesville, Camera Center
Richmond, Adams Camera Shop
Richmond, Slaters Camera Shop
Roanoke, Ewald Clark

WEST VIRGINIA
Parkersburg, Kramer's

WISCONSIN
Fond du Lac, Hauser Camera Shop
Kenosha, Rode's Camera Shop
Madison, Meier Photoart House
Milwaukee, Camera Center

CANADA (Quebec)
Montreal, McGill Exchange

This Offer Is Limited to Dealers Present Stock . . . Don't Wait

CLAYTON CHEMICAL AND PACKAGING CO. • 5420 N. DAMEN AVE., CHICAGO 25, ILL., • West Coast Plant in Los Angeles, Calif.

SAVE 50% AND MORE ON

POLASCREENS

w/o Polo Screen — w. Polo Screen

The most useful lens accessory made, equally suited for ALL color and b&w films.

Eliminates reflections in scenery, water, show-windows, increases contrast between cloud and sky, the ONLY sky filter usable with Kodachrome, Anscocolor, Extachrome, Polascreens have double threaded rings to allow use of extra filter or closeup lens; handle for convenient adjustment of maximum polarizing effect. *Sh. Ch. 10c.*

Ser. IV 3.75 Ser. VI 4.75
Ser. V 3.75 Ser. VII 5.75

Polarizing Filters, to fit standard filterholders:
Unmounted: Ser. V $1.49, Ser. VI $1.98
Mounted: Ser. IV $1.75, Ser. V $2.49, Ser. VI $2.98, Ser. VII $3.98

SALE IN OPTICAL GLASS FILTERS

Filters are the tools of the photographer—yet, fine filters, made by the best known manufacturers in the country, need not be costly. Each filter is ring mounted, and engraved as to type.

Ser. IV	$1.15
V	1.39
VI	1.59
VII	2.98

FREE on request: Famous Make Filter Compartment Case with purchase of 4 or more Ser. V, or Leather Filterbank with 6 or more Ser. VI filters (incl. polarizing) and closeup lenses. Cases cost regularly $3.00 (Ser. VI), $1.25 (Ser. V).

For b&w: lt. and med. yellow, lt. and med. green, orange, haze, red and infra-red.
For Anscocolor: Nos. 10, 11, 12, UV 15, 16, 17.

For Kodachrome and Ektachrome: Haze, Skylight, 2A, 2B, 85B, Type A, Blue 80, 82A, 1D, 2D, 81, 81A, B, C, D, EF

"About Filters, Closeup and Minus Lenses" is a booklet crammed with valuable info. Send 25c, or free on request with orders of $3.00 or more.

And, at regular prices, for the new Extachrome now available 85C, 82B, 82C

Shpg. chgs. 1 to 5 filters 10c, 6 or more 30c.

SYNCH YOUR OLD CAMERA

- **Fully adjustable mechanical tripper, requires no installation, works through standard cable release socket of most old cameras. Has fitting for standard flash cord.**
- **Allows adjustment for flash bulbs and zero (X) delay for Strobe.**

$2.49 ppd.

Tripper with famous make all metal flashgun (Flashgun only is $6.95 value, has bracket, accepts screw base bulbs; bayonet base adapter 30c) *Shipping Weight 2 lbs.* **$4.95**

FAN-TYPE BC POCKET FLASH

- **At last, a completely collapsible flash at a down-to-earth price!**
- **Sturdy battery case has built-in test lamp, ejector, accepts standard bayonet bulbs.**
- **6" diameter metal reflector has special pebble finish for maximum reflecting power, instantly telescopes making entire unit a bare 5" x 2".**

$6.95

FREE Elegant zipper-pouch, attachable carry strap.

EXTRA FEATURES. Extension outlet—no other flash under $10.00 has it! Standard shoe, fits on accessory clips. BRACKET, for use on any camera, $1.00. Cord available for all Compur and Kodak synch. terminals. For Kine Exakta, Praktiflex FX, Leica M3, Realist, Argus C3, C4, add $1.00. BC battery, lasts for a year, $1.00.
Extension gun, with 15 ft. cord, $3.98.

40 FT. CABLE RELEASE $12.49

with cafscrew and booster spring

A sturdily constructed all metal cable for remote control work to operate with any Kodak or Compur type shutter. Imagine the many new possibilities this release opens up for you—whether you photograph wild animals, unsuspecting children at play or take a self-portrait, you'll find this release a valuable accessory. **(Leica model add 25c)** *Shipping Cost 50c.*

Other All metal deluxe Cable Releases:
10 ft. $5.49 20 ft. $8.49

KOILED FLASH CORD $1.98

- **Now available for most shutters.** *Sh. Chg. 10c*
- **Patented coiled cord extends to 3 ft., yet coils up without effort to only 7".**

So handy when you want to hold flash away from camera, place electronic flash closer to subject than camera! Available with standard polarized household type plug for Heiland, etc., and prong-type for Kalart to fit Compur, Prontor S, ASA (Kodak), Solenoid, Argus C3, C4, Nikon, Realist, Praktiflex and Exakta synchronized terminals.

TIME EXPOSURE & DELAYED ACTION NOW ADDED TO EVERY CAMERA

AUTOKNIPS II WAS $4.95 $2.95

This most popular of all self timers in conjunction with a cable release, adds to your camera a feature many a photographer has paid a small fortune for. 11 slow speeds from ½ a second to ten seconds! *Ship. Cost 10c*

CABLE RELEASES: 4" 25c 7" 35c 10" 45c 40" $1.25

CHANGING BAG

ONE OF THE MOST IMPORTANT "TOOLS" OF ANY PHOTOGRAPHER

Double zippered inner and outer bags, made of the finest cloth, make this bag 100% light proof even in brightest sunlight.
Whether for use in an emergency, with a film torn or pulled off the spool in a 35mm camera, or for reloading cut film holders or for developing film when no darkroom is available . . . the changing bag is justly referred to as a "portable darkroom" 17"x16" working space plus elastic sleeves.
All these features at the lowest price a quality changing bag that was ever offered at. *Shipping charge 85c.* **$3.95**
PROFESSIONAL MODEL: 27"x20" working space, ($11.00 value) *Shipping Charge 50c.* **$6.95**

CLOSEUPS ARE SIMPLE

and inexpensive, when you buy your closeup accessories from Spiratone, the only firm specialized in low-cost closeup photography equipment.

GOOSENECK LIGHT ATTACHMENT $5.95

With C clamps, fits copy stand or enlarger pole. 2 bullet reflectors, $1.60 add. *Sh. Wt. 2 lbs.*

FREE with orders over $3.00, or send 25c for CLOSE-UP DICTIONARY . . . Contains all needed tables, too.

EXTREME CLOSEUP LENSES

can be used with any camera—with the greatest of ease and with no extra accessories. You can get as close as 8" with a Plus 4, 7" with a Plus 5, 5½" with a Plus 6, 3½" with a Plus 10. You can use two extreme closeup lenses, with a double retaining ring, for even more extreme closeups. With a Plus 5 lens, you can fill the complete 35mm frame when reproducing a postcard; a Plus 10 lens is just right for insects, stamps and coins. Extreme Closeup lenses make macrophotography possible with a tiny investment. All exc. **Plus 10, mounted in metal rings.**

	Ser. V	Ser. VI
Plus 4	1.75	2.00
Plus 5	1.95	2.30
Plus 6	2.25	2.75
Plus 10	2.65	3.25
Dbl. Ret. Ring	.85	.95

CLOSEUP (Portrait) LENSES

bring within every photographer's reach subjects which would be too small if photographed at the regular 3 ft. closest camera setting. Head and shoulder portraits, children's pictures, copy work—a whole new field of picture taking. All Closeup Lenses are mounted in metal rings. Deluxe lenses, made by nationally famous manufacturer, have diopter power engraved on rings.

	Reg.	Deluxe
Ser. IV		1.15
Ser. V	1.00	1.39
Ser. VI	1.25	1.59
Ser. VII	2.00	2.98

Plus 1 focuses from 38" to 20", Plus 2 from 20" to 13", Plus 3 from 13" to 10"—for versatility, you will want set of all three Closeup Lenses. *Shpg. Chgs. 1-4—10c.*

DELUXE COPYING STAND

Designed by us for use in conjunction with closeup lenses, extension tubes, bellows attachments, to complete with a moderate investment, your closeup and copying equipment. Strong enough for a 4x5", yet compact in storage (two-piece post) and equally well suited for copying, medical, scientific work and movie titling. Camera bracket permits centering of camera over subject. 15x18" baseboard is very practical for large originals. 1½" diameter pole is 38" high. *Shipping Weight 11 lbs.*

$9.95

6-PC. EXTENSION TUBE SET

for Kine Exakta, Exa. This set contains two precision-fitted brass adapters and four tubes, 5mm, 15mm, 30mm and 45mm, providing the greatest possible range of closeup work from a 3.4 reduction to a 2.2 magnification ratio. *Shipping Charge 35c.*
Same set but with one FOCUSING TUBE from 40mm to 90mm, alone a $10 value. Complete set $11.50.

$7.95

4-PC. EXTENSION TUBE SET

for Praktica, Praktiflex FX, Contax S, D, DA, Pentacon

$6.95

This exceptionally well-made set includes in addition to the usual 5mm, 15mm and 30mm tubes a 45mm tube, thus permitting up to 2X magnification, when the complete set is used: a tiny object, ½" x ¾" can be made to fill the entire 35mm negative or transparency! *Shipping Charge 35c.*
Same set, but with one FOCUSING TUBE, alone a $19.00 value, increasing maximum extension to 100mm. $9.95.

FOLDING BELLOWSCOPE

$14.95 ppd. **Available for Leica, Canon, Kine Exakta, Exa, Praktica, Praktiflex FX, Contax S, D, DA, Pentacon.**

The most useful of lens-to-camera closeup accessories. It weighs only 5 oz., has fine leather bellows and a geared track with a positive lock. A sturdy accurate frame assures proper alignment. An extension range up to 5" is provided, with exposure factors engraved on the track.

PROXISCOPE SR. $4.95

With elevating action

An absolute must for any kind of closeup and copy work. Doubles up as perfect elevating attachment, with both tripod and camera fittings for horizontal as well as vertical fastening of camera. *Shpg. Chg. 35c*

- **A deluxe version of the most useful camera accessory for every practical photographer.**
- **Permits minute adjustments in a 4½" range on its geared track, with a positive lock at any desired point.**

GROUNDGLASS FOCUSER for CONTAX II, IIA, III, IIIA $4.95

Fits directly inside film opening, makes possible foolproof composing, focusing.

Focusing GROUNDGLASS for LEICA, CANON

$4.95 Permits checking of lenses, composing, focusing for closeups.

16" TO INF. 135MM TELE OUTFIT

for Kine Exakta, Exa, Contax S, D, DA, Pentacon

Made to our specifications, this superb coated, color-corrected lens gives a **complete, uninterrupted** focusing range from 16" to infinity, when used with a bellows unit —without the need for adapters or closeup lenses. Outfit consists of 135mm f:4.5 coated, color-corrected lens with clickstops, and Folding Bellowscope. *Shipping Charge 50c.*

$33.95

135MM TELEPHOTO for ARGUS C3

$49.95

Finally, a 135mm f:4.5 prime telephoto, coupled to the Argus C3 rangefinder and at a price less than shorter telephoto lenses! This coated, color-corrected lens gives more than 7X the area magnification of your normal lens—imagine, a distant object on your screen will be 7 sq. inches instead of 1 sq. inch! *Deluxe Leather Case $4.95.*
FREE WIDEANGLE LENS with 135mm tele! Yes, we will include a $19.95 Spiratone aux. wideangle lens at no extra cost!

135MM TELE for LEICA, CANON $39.95

Through a special arrangement with the German manufacturer, we are able to offer you this brand new, coated, color corrected 4 element lens, rangefinder-coupled to the Leica, at an unheard-of saving! Lens openings to f.32, chrome mount, depth of field scale, light weight construction. Optics are removable for reflex housing or enlarger use. **Deluxe Leather case $3.00.** *Shipping Charge 75c.*

COMBI. OFFER: Ctd. Schneider 35mm f:2.8 rf-cpled. Xenogon Wideangle, plus 135mm telephoto (above) . . . **$99.95**

OTHER SPECIAL VALUES FOR THE LEICA—YOU SAVE 50%

90mm f:4 Sun telephoto, rf-cpld. ctd., reg. $59.95	$29.95
Imarect type Universal Finder, reg. $35.50	17.75
German Reflex Housing with Dual Cable Release	27.95
Deluxe German Lens Cases, 50mm $2.00, 90mm $2.50, 135mm	3.00
Delayed Action Timer, fits over release button	1.78
Geiss Kontakt Synchronizer, for models 3A, 3C, reg. $19.95	6.95

MINUS LENSES for TELEPHOTO EFFECTS

If you have a camera using, or capable of using a bellows or extension tube set, you will want to invest in Minus Lenses for the thrill of taking telephoto shots without buying a regular telephoto lens, or extreme telephoto shots, in conjunction with your telephoto lens; for example, a single Minus 4 lens makes your 135mm telephoto into a 270mm telephoto—varied combinations will produce a variety of effects. Minus Lenses improve the perspective in portraits, too, by lengthening the effective focus length.
Minus Lenses are mounted in Metal Rings and are sold in sets of three (of your selection) or four. Available in Minus 1, 2, 3, and 4. *Shipping Charge 10c.*

Thousands of Exakta, Praktica, Contax S and Leica, Canon owners with reflex housings find Minus Lenses most useful accessories.

	PER 3	PER 4
SER. V	—$3.60	—$4.70
SER. VI	—$4.35	—$5.65
SER. VII	—$6.00	—$7.80

Save $11.55 on Professional

HEADMASTER TILTTOP

$4.95 *slightly shop-worn*

180 degree tilting, with positive lock in any position. 360 degree rotation. Leather-covered camera platform. Solid metal throughout. Regularly **$16.50.** *Shpg. Wt. 4 lbs.*

WALNUT TRIPOD $5.79

A real government surplus bargain! Brass fittings, three sections, extremely sturdy. Disassembles into a 15½" package. Suitable for the lightest and heaviest cameras, but particularly for reflex cameras. *Shpg. Wt. 5 lbs.*

COMBI. OFFER: Walnut Tripod with Headmaster Tilttop, both for $9.95

7 SECTION POCKET TRIPOD

- **Folds down to 9" and right into your pocket!**
- **7 sections extend to 4 ft., sturdily supports 35mm and light 2¼ x 3¼ cameras.**
- **Rubber tips; leg stops.**

Wt. 13 ozs. Sh. Chge. 35c

$6.19

With Accura tilttop, $8.95

FREE Dictionary on common 35mm film terms. State camera you have when requesting.

TRIPOD OF THE MONTH

WITH SPIRATONE PANHEAD $6.66

- **Five-section brass, beautiful chrome finish. Extends to 46".**

Ideal for 35mm, 2¼ x 2¼ reflex, small folding cameras. Single motion panning and tilting action, locked by simple turn of handle. You'll agree this outfit should sell for double. *Ship. Wt. 4 lbs.*

FAMOUS MAKE

PHOTO ELECTRIC EXP. METER

- **Sensational import from Germany!**
- **Sturdily constructed, with super sensitive electric eye for maximum range!**
- **Settings from 1/1000 to 60 sec, f:1 to f:22, ASA 4 to 250.**

A $15.00 VALUE $6.59 WITH ER CASE

Most compact—2" x 3" x 1" and light, 4 oz. Snap open protective cell cover, set desired shutter speed opposite pointer—and you are ready to read off correct opening for your film. One hand operation. One year guarantee by Spiratone and manufacturer. *Shp. Cost 10c*

SPIRATONE BACKS AND RECOMMENDS THESE NATIONALLY KNOWN QUALITY

LEATHER GADGET BAGS

Made by one of the foremost manufacturers in the field, and exclusively offered by us, through a special purchase, below or close to the usual wholesale prices. These bags are all brand new first class merchandise not to be confused with "seconds" or "closeouts" of inferior leather bags. *Shpg. Wt. of Gadget Bags; 3, 4, 6, 8 and 6 lbs.*

The SP1 and SP2 bring within the reach of every photographer ample size leather gadget bags, with large outside pocket, adjustable shoulder strap, rich saddletan shade, solid brass hardware, and an adjustable inside partition.

SP1 measures 7x9¼x4¾" and is priced at half of list . . . **$5.89**

SP2 measures 8½x10½x4" and stands comparison with $15.00 to $20.00 bags . . . **$7.89**

SP4. A jumbo-sized, well-made genuine cowhide bag of beautiful appearance. Ample in size—9" x 11½" x 4"—for small press cameras and plenty of accessories. Zipper around top for easy accessibility of contents. Roomy inside pockets and an extra large outside pocket.

SP5. A topgrain pigskin bag for the advanced amateur or professional, large enough for press cameras (10" x 12" x 5"), or for taking "both cameras" along. "Wraparound" zipper, flashgun holder, shoulder pad. If you couldn't afford that $30.00 bag, you won't pass up the SP5 at a 54% saving. **$10.95**

SP6. The latest addition to our line, and one of the finest. An over-sized genuine cowhide pressbag, 10½" x 14" x 5", largest size available in gadget bags costing normally $40.00 to $50.00. Adjustable strap runs around bottom of bag—no equipment too heavy for this bag! Inside cover is a batterycase holder, on sides are one large pocket for meter, two small ones for filters. Adaptable inside partition. Back and bottom are fibreboard lined for extra support. We'd bet you'd only expect to pay that little only for a plastic bag, for the cowhide SP6 is only . . . **$13.95**

$17.95

Fresh 35mm Safety

Film is a matter of confidence—you never know, if you get a 'bargain' until it is too late. Spiratone's prices are the lowest possible—for consistently reliable film. That's why not only thousands of amateurs, but scores of professionals, of hospitals and colleges, of scientists and government agencies—in short, critical users who can't gamble—rely on Spiratone. Play safe—use only Spiratone tested and recommended film.

TRY THEM ALL — THE ECONOMICAL WAY! NEW 35MM COLOR FILM TRIAL PACKAGE

'20 EXP. ROLL, ASA 32 EKTACHROME
20 EXP. ROLL, ASA 40 AERO-EKTACHROME
20 EXP. ROLL, ASA 32 ANSCOCHROME
20 EXP. ROLL, ASA 128 ANSCOCHROME

$8.69 PPD. INCL. PROC.

FREE With color trial package: 20 Exp. ASA 200 Tri-X Reload.

35mm DAYLIGHT LOADER

INCLUDING 5 CARTRIDGES

$4.95 IF PURCHASED TOGETHER WITH MINIMUM OF $7.95 WORTH OF BULKFILM.

It's so simple to take advantage of the exceedingly low cost of 35mm bulkfilm and to load any desired length into a standard Eastman cartridge. First few reloads already make loader pay for itself. Loader alone with 5 cartridges, $5.95. *Sh. Wt. 4 lbs.*

DELUXE LOADER, with automatic counter, accepts also Leica, Contax cartridges — $10.95 or add $5.00 to comb. offers.

FREE FILM TONGUE CUTTER with your order for $5.00 or more of bulkfilm, or $4.25 worth of bulkfilm plus loader. For perfect shaping of tongue to assure smooth loading. Must be requested at time of purchase.

ANSCOCHROME INCLUDING PROC. FOR ASA 128

35MM 20 EXP. $2.59 ppd. 3 for $7.38
120 OR 620 $2.39 ppd. 3 for $6.69

Spiratone is proud to be first to offer the new Anscochrome with the revolutionary speed-increasing processing described in the June '55 issue of "Photography," enabling you, for the first time, to take fast action shots, shoot in poor light, as you would with a fast B&W film!

35MM COLOR BULK FILM

INCLUDING PROCESSING

Anscochrome, daylight, 28 ft., w easy-loader	$14.95
Anscocolor, daylight, 27½ ft., w 8 cartridges	11.95
Anscocolor, Tungsten, 27½ ft., w 8 cartridges	9.50
Ektachrome, daylight, 27½ ft., w 8 cartridges	15.95
Aero-Ektachrome, daylight, 27½ ft.	9.95

Shipping Charge 35c

for daylight loader with tongue cutter, add $4.95 Sh. Wt. 4 lbs.

AERO EKTACHROME

In response to the great demand for dependably presented, properly processed Aero Ektachrome, we have, after exhaustive tests, made arrangements with an excellent laboratory, assuring the only correct processing which will produce good results. Allowing for an ASA speed 40 for well-balanced transparencies. Prices include 48 hr. processing and return postage. *Shipping Charge 1-2 5c, 3-6 20.*

35MM IN METAL CARTRIDGES
20 EXP. $1.77 ea. 3 FOR $4.88

120, 620, 8 exp., 2¼ x 3¼ or 12 exp. 2¼ x 2¼
$1.88 ea. 3 FOR $5.25

"SPECIAL" KODAK 35MM FILM TRIAL PACKAGE

this summer, enjoy ALL phases of photography with the

Contains 1 each 20 exp. rolls of the following: ASA 200 Tri-X; Microfile; Infrared; ASA 32 Ektachrome; a total of 60 B&W, 20 color exposures. PPD. $2.95

FREE With "special" package: 20 exp. Ultra fine grain Panatomic X reload.

QUALITY COLOR PRINTS

3 DAY SERVICE FREE CROPPING
4x5" 3 for $1.50
5x7" 5 for $5.00

THE FINEST, FRESHEST, SAFETY ANSCOCOLOR

SPECIFY IF DAYLIGHT OR TUNGSTEN

RELOADS INCLUDING PROCESSING

EA. $1.98
6 for $10.80
24 for $37.20

$1.55 EA. IN LOTS OF 24

In metal Kodak cartridges—processed within three days in our modern laboratory!
Shpg. Chgs. 1—5c; 6—30c.

ANSCOCOLOR BULK

27½ ft. incl. 5 cartr. ... $6.95
50 ft. incl. 8 cartr. ... 11.95
100 ft. incl. 10 cartr. ... 22.95
Shpg. Chgs. 25c, 35c, 50c.

4x5 ANSCOCOLOR CUT FILM

10 for $2.75; 40 for $9.95.

120 and 620 ANSCOCOLOR

1956 dating, factory packed. Prices include rapid processing. Specify daylight or tungsten. $1.39 ea., 3 for $4.00.

COMBINATION OFFERS

Daylight Loader, 27½ ft. Anscocolor, 10 cartridges, 100 glass binders. All for $13.95

'Develop Your Own Anscocolor Film Outfit', consists of 27½ ft. Anscocolor, Film Tongue Cutter, eight cartridges, a quart-size Anscocolor Developing Kit and the helpful book 'Color Photography Made Easy' with taking and processing instructions. All for $10.95
Ship. Wt. 4 lbs.

Above outfit, plus daylight loader and five more cartridges $15.40

TRIAL SET 20 exp. Anscocolor Reload, chemicals for processing, mounts and simple instructions—All for $2.50
Ship. Chg. 25c

FRESH SAFETY KODAK B&W FILM

All four popular speeds, Panatomic X (Background X), Plus X, Super XX and Tri-X are available in 27½ ft., 50 ft. and 100 ft. lengths and 20 and 36 exposure reloads.

27½ FT. $1.39 50 FT. $2.29 100 FT. $3.90
Shipping charges 10c, 30c, 30c

COMBINATION SPECIAL

Daylight loader with 5 cartridges and 100 ft. of black & white film, a $9.99 value $7.99
Shpg. Wt. 4 lbs.

BLACK & WHITE RELOADS in metal cartridges may be assorted

20 EXP. 40c ea. 6 for $2.00
36 EXP. 60c ea. 4 for $2.00
Shpg. Chgs. 1 or 2 5c; 3 to 6 20c; 7 to 12 35c.

ALL YEAR B&W ASSORT.

Daylight loader with 5 cartridges plus 27½ ft. each of Panatomic X, Plus X, Super XX and Tri-X $10.49

FRESH 35MM ANSCOCHROME EKTACHROME RELOADS

ASA 32—1956 dating—daylight type—20 exp.—in metal cartridge. EACH ... $1.50 3 for ... $4.19 7 for ... $9.50 *Shpg. Chge. 5c per roll*

FAST 120-620 COLOR FILM

ASA 40 Aero Ektachrome	3 for $5.35	INCL. PROC.
ASA 32 Anscochrome	3 for 5.75	
ASA 128 Anscochrome	3 for 6.89	

COLOR PROC 75c Per Roll
35MM-120-620 Anscocolor, Anscochrome, Ektachrome

Black and white FINE GRAIN 35mm SERVICES

Spiratone 35mm services are used all over the world. They combine extreme economy with expert workmanship and the use of the best materials. Each negative individually exposed on the proper contrast paper.

PRICES INCLUDE POSTAGE

"SUPERB" Ultra Fine Grain Processing and 3¼ x 4½ doubleweight velvet enlargements. 20 exp. roll ... $1.33
36 EXP. ROLL $2.00 65 EXP. ROLL $4.15

"EXCELSIOR" Ultra Fine Grain Processing and 3¼x4½ glossy enlargements. 20 exposure roll ... $1.15
36 EXP. ROLL $1.83 65 EXP. ROLL $3.60

The cost of reprinting uncut developed rolls is the same as that for undeveloped rolls.

Ask for free mailer, price list on b&w, color services.

"MASKOSPOT" The most highly perfected 35mm service. Ultra Fine Grain Processing and enlargements on doubleweight velvet or singleweight glossy (please specify which) paper

	36 EXP. ROLL	20 EXP. ROLL
3¼ x 4½	$2.60	$1.68
3½ x 5	3.12	2.08
4 x 6	3.66	2.35

"PROJECTION POSITIVES" Ultra Fine Grain Processing and b&w transparencies for viewing or projection without affecting your negatives. Each negative is individually exposed on f.g. safety film. 20 exposure roll ... $1.05
36 EXP. ROLL $1.55 65 EXP. ROLL $2.81

ASK ABOUT THE 35mm MINIADAPTER FOR YOUR 120/620 CAMERA

2 x 2" 10 PC. NATIONAL PICTURE SLIDE SETS

50% OFF Yes, these famous sets of 2 x 2" full color slides of which hundreds of thousands have been sold at $1.00 per 10 are now brought to you at half price! Scenics from all over U. S. and many foreign countries, and children's stories — any eight sets (80 full color 2x2 slides with subject matter imprinted) $4.00 postpaid. Each number contains 10 dif. slides. Choose from these:

1. Shrines, Wash., DC
2. NY's Hudson River
3. Rodeo in Calif
4. Block Island
5. Around NY City
7. From the Empire State Bldg
8. Wash., D. C. Landmarks
9. Times Square to Central Park
13. Bryce Canyon
14., 14B., 14C. Yellowstone
15. Washington, D. C.
16. Santa Barbara, Cal
21. Hialeah Racetrack, Florida
22. Miami Bus. Dist.
24., 24B. Sightseeing in Fla.
25. Hollywood to Frisco
25A. California
27., 27A. NY-Midtown
28. NYC Financ'l Dist.
29. Williamsburg, Va.
29B. Virginia
30. Great Smokey Mtns.
31. Chicago, Illinois
32. Notre Dame Univ
33. Grand Canyon
34. Col., Estes Ntl Park
35. Kansas City, Mo
36. Glacier Ntl. Park
37. Yosemite Ntl. Pk.
39. Wisconsin Dells
40. Atlantic City, NJ
44. Mackinac Isle, Mich.
45. Petrified Forest
52. Paris, France
54. Southern France
60. Madrid, Spain
70., 71., 72. Ireland
80., 81., 82., 83., 84. Rome, Italy
85., 87. Vatican City
88. Genoa & Columbus
100. Pyramids to Cairo
101. Cairo, Egypt
110., 111. Bombay India
120., 121. Lisbon, Portugal
130. Alaska
140. Switzerland
145. Austria
151. Istanbul, Turkey
160. Athens, Greece
170. Progressive Japan
180., 181. Mexico
190. Bermuda
191. Havana, Cuba
202., 203. Canada
208. Australia
211. Haifa, Tel Aviv, Israel
5. Children's Tales

Two sample sets (20 slides) with complete lists $1.35 ppd. Act fast—the supply is limited. State some alternates, please.

25% BULK BONUS

in popular 50c Luminex Reflector Frames for 35mm transparencies. With your order for loader, bulkfilm or loader-bulkfilm combination, you will receive 25% of the amount of your order in Luminex Frames. *Example:* With Loader—100 ft. bulk $7.99 special, you receive FOUR ($2.00 worth) of these beautiful frames. *Ask for 'BB' (Bulk Bonus) with orders placed before August 30, 1955.*

SAVE 60% ON BRAND NEW SYNCH COMPUR SHUTTER

$19.95 PPD. This most famous of all shutters has 8 speeds, 1 second to 1/200th, X-delay synch for flash and strobe, cable release socket, delayed action diaphragm scale from f:4.5 to f:32. Appr. inside diameter for front elements is 1½", for rear elements 1⅜".

Same shutter, without delayed action, but with blade arrester (Press-Compur) ... $24.95

8PC. DELUXE MANSFIELD ACTION EDITOR

SAVE 50%

8MM MODEL Reg. $59.50 $29.75

FREE with Deluxe Action Editor: Elegant Reelchest, for 12 reels (specify 200, 300, or 400 ft. cap.)

Shpg. Wt. 12 lbs.

16MM MODEL same as 8mm but with 2,000 ft. rewinds, reg. $60.50 $34.75

Diecast base comes readily apart for compact storage. Action Viewer has focusing AND framing control, projects brilliant image on 2x3" screen. Easy to thread, scratchproof, scientific ventilation of lamphousing. Complete Outfit: Viewer, 3 piece base, automatic master splicer, cement, pair of 1200 ft. rewinds.

3 UNIT REFLECTOR OUTFIT $5.49

- Two aluminum 10" reflectors for #1 or #2 bulbs
- One bullet reflector for spot effects

All three complete with swivel joint, switch, socket, clamp and cord ... at a fraction of their usual cost. *Shipping Weight 5½ lbs.*

SUGGESTION: 2 #2, 1 #1 photoflood bulbs 86c.

PHOTOFLOOD STAND PLUS TWO REFLECTORS

- 3-section metal stand extends 6'4"
- Sturdy, braced legs with rubber tips.
- Stand telescopes compactly to only 2 feet.
- Positive locking at any desired height.

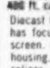
The ideal indoor lighting setup. 22" crossbar, can also be used to hold screen, backgrounds. Two-spun aluminum 10" reflectors (for #1 or #2 photofloods), complete with sockets, switches, 6' cords, ball socket swivel joints, rubber jawed spring clamps. Can be used on cross bar or furniture. *Shipping Weights: Stand 4 lbs.; Reflectors 4 lbs.*

$11.00 VALUE $6.49 COMPLETE

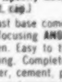
SUGGESTION: 2 #2 photoflood bulbs ... $ .66
Extra clamp on bullet with bulb (for semi-spot) ... 1.70

METAL SNAKE CHAIN for Leica, Retina, Exakta, Pony, etc., elegant practical, safe and luxurious. Reg. $2.50 ... $1.29

Battery-illuminated POCKET VIEWER, shows brilliant magnified image at comfortable distance, everywhere $6.00. $2.95



WALKING STICK TRIPOD, extra rigid; legs fit together to make a walking stick 42" high. Reg. $8.82. Shpg. Wt. 3 lbs. ... $2.98



GIANT 7" TWIN FLASH REFLECTOR, adaptable to most battery cases. 2½" deep, aplanatic, ejector. List $10.95. Sh. Ch. 50c. $2.95

6½x9CM CUTFILM HOLDERS, for German cameras, all metal, easy to load, reg. each $2.00, your cost, ea. $1.00, 6 for ... $5.29

80X POCKET MICROSCOPE, fits pocket like fountain pen, all metal, while they last, TWO for ... $1.98

2 x 2 GLASS SLIDEBINDERS

- Comparable to 6c slidebinders.
- One of the finest methods of mounting transparencies (35mm Argus, Leica size) betw. glass!

The biggest bargain in quality slidebinders ever offered. Pregummed Fibreboard, self-centering of slide, provision for type-on titles, dustproof, lintfree, shockproof—all these advantages are yours for less than the usual cost of glass alone! Why risk fingerprints and scratches on your irreplaceable color shots? 200 for $5.00.
Shipping Weight 3 lbs.

2½¢ ea. in lots of 200

Sample package of 20 2x2 glass and 3 2x2 metal binders, postpaid ... $1.25

200 singleframe (Mercury) Masks $1.75 | Masks fit glass
200 Square (Robot, Tenax) Masks $1.75 | & metal binders
2x2" cardboard mounts for single frame (Mercury size) transparencies 50 for 55c. *Sh. Wt. per 100, 1 lb.*

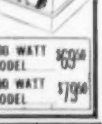
800 for $18.95

SAVE UP TO 50% ON 2x2 METAL SLIDEBINDERS

The ultimate in simplicity! Aluminum glass binders may be used over and over again. Just place transparency between glass, insert in metal non-warp frame. Sample package of 20, $1.50 ppd.; 54 for $3.51; 100 for $5.95; 600 for $29.95; 1800 for $72.00. *Ship. Wts. 2 lbs., 4 lbs., 21½ lbs., 60 lbs.*

as low as 4¢ ea.

AUTOMATIC 2x2" REVERE SLIDE PROJ.



Never before in history could you buy a projector with all these features at our low price! Use "Automatic" Setting and advance to next slide in 36 slide magazine! Switch to 'Manual' and you can select any one of the 36 slides for instant showing! 300-500 Watts. Quiet, efficient blower-cooling — 5" f:3.5 ctd. Wollensak lens — Magazines accept ALL types of slide mounts, mixed — Built-in Pointer — Elegant Case with built-in screen for close projection — *all brand new for $69.50.* 50x50 Beaded Tripod Screen $12.97. Extra Slide Magazines — 2 for $2.98.

Your Old Projector Taken in Trade — Generous Allowance! Write us, stating what you have, model you want.

300 WATT MODEL $69.50
500 WATT MODEL $79.50

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — slight extra handling charges apply.

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AT LAST! You can now get wonderful quality National Photo Labs 35mm fine grain developing at a real rock bottom price! Just think—your 36 exposure roll developed and printed by skilled laboratory technicians to King Size wallet prints—2¼" x 3¼" clear glossies on DuPont Varigam (except ½ frame, Mercury, etc. $2.00). 4 days' service.

☐ **AT THE LOWEST PRICE ANYWHERE (36 Prints) ONLY $1.25**

WALLET SIZE COLOR PRINT ONLY 35¢ EA.

Now you can get quality full wallet size 2¼"x 3¼" color prints from your 35mm color transparencies at this low price. Wonderful full vivid color prints you'll be proud to show to your friends. ☐ **AT JUST 35c EACH!**

☐ **FREE COLOR ENLARGEMENT**

. . . with every roll of color film processed at these LOW RATES: Ansco film $1.00 . . . Ektachrome 120 and 620—$1.00 . . . Ektachrome 35mm—$1.25 (mounted) . . . Custom processed by experts. You get a FREE coupon good for 2½"x3¼" full color enlargement with every roll ordered!

ANSCO 35MM COLOR RELOADS

Now—at LOWEST PRICE ANYWHERE!

Made from factory-fresh brand new ANSCO Film. Money back if not fully satisfied. Daylight or Tungsten. **REAL BIG SAVINGS.**

☐ **20 exp. for $1.00** ☐ **5 for $4.50**

New High Speed ANSCOCHROME FILM

☐ 20 exp. $1.50 ☐ 5 for $6.95

New! KODAK TRI-X

SUPER SPEED B & W FILM

35MM RELOADS AT BIG SAVINGS

This new fast film is twice as fast as Super XX. It offers new exciting picture-taking possibilities. Take indoor shots by existing light . . . night sporting events without a flash . . . fast, action pictures even on dull days. ASA daylight exposure rating better than 200. Reloaded from original 100 ft. Kodak factory-fresh, packed film. . . . FULLY GUARANTEED. **You can't buy fresher film anywhere.**

☐ 36 exp. rolls **68¢** ☐ 20 exp. rolls **45¢**
☐ 5 rolls **$3.00** ☐ 5 rolls **$2.00**
☐ Plus X ☐ Super XX available same price
☐ TRI X also available in 120 & 620 size—**50¢** a roll

HEADQUARTERS FOR NEWEST TYPE FOREIGN FILMS

FROM GERMANY . . . ADOX FILM designed for your 35mm camera

☐ ADOX KB 14 (ASA 16 Daylight) Medium Speed
☐ ADOX KB 17 (ASA 32 Daylight) High Speed
☐ ADOX KB 21 (ASA 80 Daylight) Super Speed
☐ 36 exposure cartridge . . . $1.45
☐ Also in 50 FOOT ROLLS—ONLY . . . $9.85

FROM ENGLAND FAMOUS 35MM ILFORD FILM

☐ 35MM HP-3 (36 exp. ONLY **$1.25**—3 for $3.50
☐ 27 ft. 35mm rolls . . . $2.70
☐ 100 ft. 35mm rolls . . . $7.40
☐ 120 & 620 (8 exp.) per roll . . . $ .50

FROM BELGIUM . . . GEVAERT GEVAPAN 35MM FILM . . . ASK FOR OUR PRICES!

35MM BLACK & WHITE SLIDES

The most thrilling way to look at your pictures is on the screen. Now all your friends can see your pictures at the same time. Slides made from any size negative or photo. Specify cardboard mounts or film strips.

☐ 5¢ per frame from complete 35mm roll unmounted
☐ 10¢ mounted
☐ 25¢ ea. from negatives larger than 35mm
☐ 45¢ from photos

NEW FAST EKTACHROME TOP QUALITY RELOADS

NOW you can get the new FAST KODAK Ektachrome color film at SENSATIONAL LOW PRICES in Factory Fresh fully guaranteed reloads. Made especially for 35mm cameras this new fast color film enables you to take clear crisp color shots with the speed of black and white! ASA 32 Daylight—40 Flash or Tungsten. 100% satisfaction guaranteed.

☐ 20 exp. . . . $1.50 ☐ 36 exp. . . . $2.50
☐ 5 for $6.95 YOU SAVE 55¢ ☐ 4 for $9.50 YOU SAVE 50¢

FREE! GET FREE ENLARGEMENTS . . . with AMAZING LOW PRICED EKTACHROME PROCESSING

Just think—top quality processing and mounting of your new Kodak Ektachrome film and FREE ENLARGEMENT coupons at these low prices:

☐ 20 exp. $1.25 ☐ 36 exp. $2.50
☐ 620 and 120 . . . $1.00
—free—one color enlargement

These prices include mounting your transparencies in handy cardboard mounts!

FREE ONE COLOR ENLARGEMENT FREE with each 20 exp. roll.
TWO COLOR ENLARGEMENTS FREE with each 36 exp. roll.

EVERYTHING IS FULLY GUARANTEED

NATIONAL PHOTO LABS
New Hyde Park 7, New York

I enclose $ _____ for the items and services checked above.

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☐ Send me **FREE MAILING BAGS**, a sample print showing quality of work, list of services.

NATIONAL PHOTO LABS

New Hyde Park 7, New York

Censorship Revisited

In my March column I considered the general subject of censorship—at various levels—as applied to the reproduction of nude photographs. This touched off quite a flurry of mail, which hasn't ended yet. Let's see how some of my correspondents feel about this wonderfully controversial matter.

One very earnest New Yorker is all for leaving it up to the clergy to decide what we shall and shall not see. Recorded history will show anybody the folly of that course of action. And in those cases where it is still attempted you find considerable hypocrisy, not to mention ignorance, among the "protected."

Man in Wyoming writes forcefully (!) to advise me that I contributed nothing, since I set my own arbitrary standards of good and bad. Says that the high-school principal's motives, in clipping this magazine's pages, may be better than my own. Feels that "serious art students—not a high-school camera club—have a valid reason for examining good nude photographs." So who's to set the age limit for serious art students?

And from way across the sea—the address is an APO—"Interested Reader" writes that he doubts seriously that I understand the group mentality of teenagers. He's *so* wrong. With one teenager of ours in college and another in high school, I've been exposed to teen-age thinking and habits for several years, and have several more to go. It isn't the monthly copy of POPULAR PHOTOGRAPHY that we have to worry about—it's the junky paperback shockers and the pseudo "art" magazines, which are always available.

A Florida camera club secretary sent a pleasant note, from which I quote the following: ". . . I am expressing the sentiments of the entire club when I compliment you on your stand on nudes in photography. . . ."

Well, everybody had something interesting to say. With one or two exceptions the letters showed real thought. Naturally, my favorite among them is one from a high-school student in California, who offered this sincere comment: ". . . Some parents and groups always will be ready to fight with school, magazine, or anyone else who will listen to your side of the issue."

Any sane person of high-school age or older knows the real difference between truly artistic figure study and suggestive junk. The latter will not be found in these pages. It will be readily available elsewhere to anybody with the money to push across the counter, so long as shops and newsstands continue to take it on.

Tri-State Council Well Started

Formed in January of this year, the *Tri-State Council of Camera Clubs* consists of groups at Washington and Belle Vernon, Pa.; Wheeling, W. Va.; and Weirton, East Liverpool, and Steubenville, O. The cities are within approximately 40 miles of each other. Despite very unfavorable weather, the first council meeting drew 65 people.

Simplicity is the keynote in conducting council affairs. There are three meetings annually, each club taking a turn at being host and arranging for meeting place, judges, and refreshments. Thus the responsibility comes up only once every two years for each club. Print and color competitions are features of each meeting. In addition, a summer outing is planned.

Only elected officer is the council president, who presides over business meetings attended by two representatives from each club. The appointed secretary-treasurer is from the same club as the president.

The *Tri-State* people recommend their streamlined setup to other groups of camera clubs similarly located within easy driving distance of one another. For further information, write to Ralph Reasoner, secretary-treasurer, R.D. No. 2, Steubenville, O.

Road Shows Being Booked

Helium City Camera Club is making exchange bookings for its 60-slide color show with tape commentary. Write to the club in care of B. N. Elliott, 3103-B Curtis Drive, Amarillo, Tex.

A similar slide-and-tape traveling show is being routed on an exchange basis by *Bristol Camera Club*, care of Miss Mary Hagaman, 1703 Windsor Ave., Bristol, Tenn.

They'd Like Mail

How about dropping a line to the following clubs which would like to exchange ideas?

Club Fotografico de Guantanamo, Sr. Carlos A. Jones, Apartado 103, Guantanamo, Cuba.

Kodiak Camera Club, Jesse D. Blount, Box 2, Navy 127, care of Postmaster, Seattle, Wash.

We hear from *Olean* (N.Y.) *Camera Club* that this magazine's claim to world coverage can be substantiated from that quarter any time. *Olean's* Gerald Schindler wrote to tell me that following a brief mention of the club here they got mail from Schenectady, N.Y.; Hamilton, Ontario; Sasebo, Japan; and St. Lucia, British West Indies. Which makes me think that if only international diplomacy were conducted by camera clubs, the world would be in far better shape!

Well, now it's official. Massachusetts' Gov. Christian Herter has proclaimed October 2-8 as Photography Week in the state. PSA convenes in Boston that week.

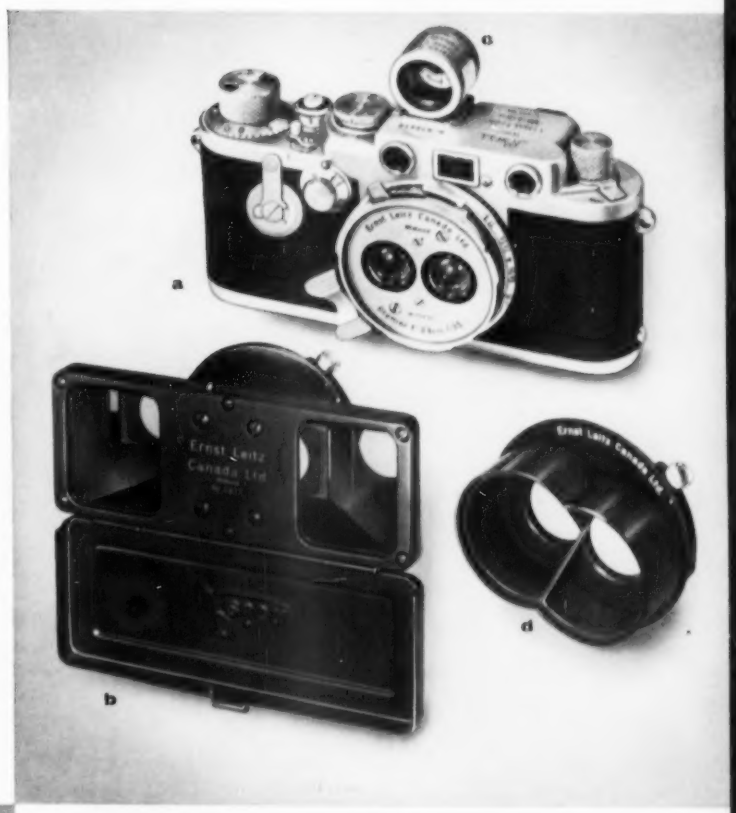
Is your club on our mailing list? If not, please send name and address to: POPULAR PHOTOGRAPHY, Department 307, 366 Madison Ave., New York 17, N. Y.

Now stereo the Leica way

new **STEMAR** *stereo attachment*

STEMAR introduces stereo to the Leica System! Interchangeable with other Leica Lenses, STEMAR enables Leica owners to take both regular and stereo shots on the same roll of black and white or color film. The stereo pair appear side by side on a double frame, eliminating cutting, transposing, or remounting.

STEMAR gets perfect 3-D pictures of objects near or far—up to about 10 feet you use STEMAR (a) with Lens Hood (d) for perfect stereo perspective; for greater distances you attach the Stereo Prism (b). STEMAR couples to rangefinder; special viewfinder (c) fits accessory clip. You can enjoy your STEMAR stereos with the hand viewer (e) or with a projector such as the Prado 500 or Prado 150.



STEREO HAND VIEWER

STEMAR stereos are ready for hand viewing or projection as received from the processor without cutting or remounting. To achieve the transposition necessary for hand viewing, the unique STEMAR viewer contains special prisms that transpose the stereo pair optically, eliminating all remounting. Magnification: 5X. Comes with or without battery-powered light attachment.

For further information write to: **E. LEITZ, INC., 468 FOURTH AVENUE, NEW YORK 16, N.Y.**

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of the picture
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IMPROVES YOUR MOVIES & SLIDES

SLIP A VISTASCOPE LENS ONTO YOUR PRESENT MOVIE, 35mm OR ROLLEIFLEX CAMERA AND PRESTO . . . BREATHTAKING NEW WIDE-SCREEN EXCITEMENT

Vistascope is a double-purpose coated lens used on both camera and projector.

What The Experts Say:

"Results amazing. Far superior to any wide angle lens. With it you can do anything that Hollywood has done with Cinemascope."
W. W. MORRIS
Director of Photography
Popular Science Magazine

"Combines reasonable cost factor with unprecedented image quality. Over all sharpness and color correction . . ."
NORMAN C. LIPTON
Popular Photography

"For the first time amateurs may get spectacular Cinemascope effects with no special techniques or equipment other than the Vistascope lens attached to present equipment."
HENRY PROVISOR, Ed.
Home Movies Magazine

Vistascope shoots 50% wider area while retaining full-image height. The wide image is "squeezed" onto a standard frame then "unsqueezed" when projected through the same Vistascope lens. The wide image gives you the same effect in the home as Hollywood's wide-screen techniques give in the movie theatre. The pictures seem to surround you because they encompass even corner-of-the-eye vision.

The 16/35mm Vistascope lens can also be attached to 8mm movie equipment. It's the only anamorphic lens priced for amateur use, yet the quality is equal to lenses costing 10 times more!

Literature upon request. • *Order now—fill in coupon on next page.*

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TAKE YOUR OWN WIDE-SCREEN MOVIES & SLIDES WITH

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Guaranteed to be the Finest Anamorphic system in the world!

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VISTASCOPE 8 mm LENS
— FOR CAMERA AND PROJECTOR

Fits all 8mm cameras and projectors. Comes in handsome leather case, specially lined to keep lens safe at all times. Takes and projects 50% wider image. Uses standard film, standard processing methods, standard screen.

only $7.50 DOWN

$75

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VISTASCOPE 16/35 mm LENS
FOR 16MM MOVIE AND 35MM* SLIDE CAMERAS AND PROJECTORS

Same lens used with camera and projector. Also fits Rolleiflex with Rolleikin. Finest precision optical system — absolutely no distortion. Comes in special unbreakable lined leather case. Standard film, screen, processing.

$125 only $12.50 DOWN

*having 65mm or longer focal length
Example: Leica, Contax, Exacta, Canon, Nikon, Voigtlander, etc.

BENEFITS OF USING VISTASCOPE

- **GIVE YOU 50% MORE PICTURE—SAVE 50% OF YOUR FILM COST!**
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I am contemplating a trip to Alaska this summer and expect to shoot only Kodachrome, using a 35-mm camera. Do you have any special recommendations for that latitude in July and August? —P.A.F., Long Branch, N. J.

My first suggestion is that you look at some of the new color films just hitting the market; their increased speed and latitude may make you want to consider them — although, no question about it, Kodachrome is wonderful. Most important thing you'll want to remember about Alaska in summer is that when you have sunshine, you will have it for longer hours. This means that you will have more time for outdoor picture taking; but you must remember that although the sun will be out for a longer time, it will not be as high as it is back in New Jersey in the summer. This will be like the sun in the afternoon in winter—rather low in the sky and therefore somewhat reddish. Now, when you make pictures directly illuminated by sunshine, with the sun at your back, they may appear too warm to you and it might be smart to use one of the cooling light-balancing filters like the 82 or 82A. On the other hand, if you make pictures with the sun at an angle you'll find that you have warm reddish sun on one side and good illumination from the big blue bowl of the sky on the other side and your pictures may appear purplish. You may therefore want to use a warming filter like the light balancing 81A if much of your general scene appears bluish or has some haze in it.

For close-ups if you use flash, you might try using reflectors or use a clear flashbulb (instead of blue) to light the shadow side of a face, and then use an 82A filter to cut the excess red from the whole picture. For pictures made in late morning or early afternoon, however, you'll probably have no trouble at all. A good exposure meter that you know how to use and have faith in is probably the best accessory.

•

I have a great many color transparencies of which I would like to have duplicates and also color prints. I have been trying to photograph these on Negative Color film but the negatives are entirely too contrasty. I have tried varying time and temperature in my processing, but so far no good results.—J. M. G., Kalmthout, Belgium.

You do not tell us which negative color material you have been using. Our own experience has been mostly with Kodak Ektacolor film, and with this material there are several things that will help to get a proper contrast. First, I enthusiastically recommend the double-masking technique or the intermediate-negative procedure where the highlight mask and single principal mask are used. Kodak then recommends with this latter technique the use of a flash exposure where, after the basic exposure has been made in an enlarger, the negative and masks are removed from the negative carrier, the carrier replaced (to prevent stray light leakage) and a flash of light approximately 1/1000 of the correct exposure time is given. The easiest way to compute this is by the use of three thicknesses of Kodak Neutral Density Filter of 1.0 density. (A single thickness has a transmission of 10%; three thicknesses will give .1% which is 1/1000 of the light) and with these three thicknesses of filter, then just give the same exposure as you gave before. The purpose of this exposure is to lower the contrast of the Ektacolor negative and subsequently of the positive transparency.

If you are having trouble with the same problem, or if you'd like to know about making duplicate color transparencies in the sheet-film sizes with Ektacolor film, ask your dealer to get you a leaflet called *Making Duplicate Color Transparencies in Sheet-film Sizes* (No. E-25) from Eastman, or write for it yourself, to Sales Service Division, Eastman Kodak Co., Rochester 4, N. Y.

•

Some months ago we talked about the use of colored sheets for correcting transparencies and mentioned Bourges Colortone sheets, presuming that everyone knew about them. Wow! Did we get mail from all over—everyone wanting to know where to get this material. So we'll give you more information on the subject: These are colored sheets of transparent material which are placed in back of transparencies and give a slight filtering or color correction. Some of the sheets are of the type where the color can be removed, so that you add color only to the area in which you may specifically want it. There are also liquid coloring solutions so you may add color to overlay sheets. This material is obtainable through commercial-art supply stores in almost every big city. If your art dealer doesn't have it, or doesn't know about it, write to Bourges, Inc., 80 Fifth Avenue, New York, N. Y. It was developed and invented, by the way, by Albert Bourges, who is one of the fathers of modern color photography and a great color photographer in his own right. The Bourges materials are used by many commercial people in advertising, publication work, etc.

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

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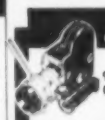

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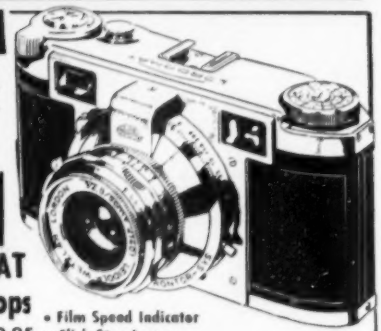
2. If you have equipment to trade, check if it is represented in listing and deduct the allowance shown for it in column three.
3. Rush your order (and trade-in equipment if you have such) plus your remittance to cover—or instructions to ship C.O.D. for the balance.

MINIFILM will immediately forward the equipment you desire. Of course your order will be fully insured. OUR FAMOUS 30 DAY MONEY BACK GUARANTEE AND 2 YEAR SERVICE GUARANTEE ASSURES YOU OF COMPLETE SATISFACTION.

LORDOMAT

The 1955 Camera sensation from Wetzlar Germany offering features that compare with the best yet selling for below $100.

- RAPID TRANSPORT LEVER
- SINGLE WINDOW COUPLED RANGEFINDER AND VIEWER
- INTERCHANGEABLE LENSES



Only 89.50

BRAND NEW 35mm LORDOMAT f2.8 Lordon, Coated, Click Stops

Deluxe Leather Eveready Case	$9.95
Patented Taco Color Flashgun	7.95
35mm f3.5 Lordonar Wide Angle Lens, Click Stops	55.00
90mm f4.5 Telordon Telephoto Lens, Click Stops	64.50
Combination Viewfinder	12.50
Omnica Combination Case	49.50

- Film Speed Indicator
- Click Stop Lenses
- Double Exposure Prevention
- Positive Automatic Lens Coupling System
- Detachable Back for Easier Loading
- Die Cast Aluminum Body
- Shutter Speeds from 1 sec. to 1/300 of a sec.
- Built in Self Timer
- Adjustable MX Flash Synchronization
- Built in Orange Filter for Easier Focusing

Lenses for LEICA, CANON, CONTAX, NIKON

	New	Used	Trade-in
28mm f3.5 Serenarg W.A.	$134.00	$ 79.50	$ 55.00
35mm f2.8 Biogon W.A.g	183.00	126.95	100.00
35mm f3.5 Nikkorg W.A.	97.50	57.00	40.00
35mm f3.2 Serenarg W.A.	94.00	72.00	45.00
35mm f3.5 Summarong W.A.	98.00	57.25	40.00
50mm f3.5 Elmarg	57.00	34.00	30.00
50mm f1.4 Nikkorg	199.50	118.00	80.00
50mm f1.5 Sonnarg	175.00	98.00	80.00
50mm f2 Summitar	88.00	62.95	45.00
50mm f2 Summicrong	156.00	106.00	85.00
50mm f1.5 Summarit g	177.00	109.95	90.00
85mm f1.5 Lithogon g	199.50		95.00
85mm f2 Nikkorg	179.50	89.00	70.00
85mm f1.5 Serenarg	238.00	137.50	110.00
85mm f2 Sonnarg Tele	270.00	99.50	75.00
85mm f1.5 Summarexg	360.00	179.00	140.00
90mm f4 Elmarg	98.00	58.00	40.00
100mm f4 Serenarg	87.00	49.00	35.00
105mm f2.5 Nikkor g	152.50		75.00
135mm f4.5 Leitz Hektor Blk		63.95	40.00
135mm f3.5 Nikkorg	145.00	85.00	62.00
135mm f4 Serenar g	108.00	69.00	50.00
135mm f4 Sonnar g	146.00	88.00	70.00
200mm f4.5 Telyt g	156.00	104.00	75.00
400mm f5.6 Novoflex g	189.50		85.00

Lenses for EXAKTA, CONTAX D, PRAKTICA, PENTACON

	New	Used	Trade-in
28mm f3.5 Angenieux g	$120.00	$ 73.95	$ 60.00
35mm f2.5 Angenieux g	99.50	56.95	45.00
40mm f3.5 Cassaron g	49.50	31.00	20.00
40mm f3.5 Makro Kilar Model D g	114.95	78.50	60.00
50mm f2.8 Westenar Auto Diag	69.50	44.50	30.00
50mm f1.9 Xenon Autog	169.50	119.00	90.00
58mm f2 Biotar g		49.00	35.00
58mm f2 Biotar preset g	125.00	63.95	45.00
75mm f1.5 Biotar g	216.50	93.95	75.00
85mm f1.5 Lithogon g	179.50		85.00
85mm f2.8 Steinheil g	65.00	42.00	30.00
90mm f2.5 Angenieux g	84.50	54.50	40.00
90mm f1.8 Angenieux g	149.50	96.50	75.00
90mm f4 Sun g	51.95	24.50	20.00
90mm f4 Sun preset g	64.95	33.50	25.00
135mm f3.5 Angenieux g	75.50	45.00	30.00
135mm f4.5 Steinheil g	60.00	37.00	27.00
135mm f3.8 Sun g	59.50	29.50	20.00
135mm f3.5 Sun preset g	74.95	36.50	25.00
135mm f3.5 Tele Coinar preset g	84.95	44.00	35.00
135mm f4.5 Tele Xenar g	58.95	39.50	30.00
180mm f5.5 Tele Xenar g	82.75	54.50	40.00
240mm f5.5 Tele Xenar g	115.75	78.00	55.00
360mm f5.5 Schneider Tele Xenarg	169.95	98.00	75.00
400mm f5.6 Novoflex g	189.50		85.00

ACCESSORIES FOR IMPORTED CAMERAS

	New	Used	Trade-in
Leitz Focaslide	$ 36.00	$23.00	$15.00
Leitz Imareci Finder	39.00	24.00	16.00
Leitz B.C. Flashgun	24.00	18.00	12.00
Leitz Mirror Reflex Housing	102.00	65.00	50.00
Zeiss Revolv. Univ. Finder	80.00	42.75	30.00
Zeiss Contometer Close-Up	81.00	43.00	30.00
Rapid Leicavit for IIIf	24.00	16.00	10.00
Novoflex Bellows for Leica, Contax	39.50		15.00
Novoflex for Exakta, Pentacon, etc.	39.50		15.00
Novoflex Reflex Housing for Leica-Contax	145.00		75.00
Novoflex tripod and Stereo Rackover	25.00		12.00
Novoflex Universal Panoramic attach	11.50		

LEICA CONTAX NIKON CANON

	New	Used	Trade-in
Canon IV S 2 f1.8 Serenarg*	$284.00	$144.00	$130.00
Contax I f2.8 Tessar		46.00	30.00
Contax II f2 Sonnar		84.00	70.00
Contax III f2 Sonnar		109.00	80.00
Contax IIA f2 Sonnar g*	345.00	167.00	125.00
Contax IIA f1.5 Sonnar g*	374.00	189.50	145.00
Contax IIIA f2 Sonnar g*	383.00	194.50	150.00
Contax IIIA f1.5 Sonnar g*	412.00	150.00	196.00
Leica IIIA f2 Summar		84.50	65.00
Leica IIIC f3.5 Elmar g		92.00	70.00
Leica IIIC f2 Summitar g		124.00	100.00
Leica IIIF f3.5 Elmar g*	237.00	152.00	120.00
Leica IIIF f2 Summitar g*	268.50	147.50	130.00
Leica IIIF f2 Summicron g*	336.00	183.95	160.00
Leica IIIF f1.5 Summarit g*	357.00	196.95	175.00
Leica M3 body	288.00		150.00
Leica M3 f3.5 Elmar g*	348.00		175.00
Leica M3 f2 Summicron g*	447.00		220.00
Leica M3 f1.5 Summarit g*	468.00		230.00
Nikon S2 f1.4 Nikkor g*	345.00	197.50	170.00
Nikon J2 Nikkor g*	269.00	154.00	105.00
Nikon F1.4 Nikkor g*	299.95	167.50	125.00

35MM SINGLE LENS REFLEX

	New	Used	Trade-in
Alpa 5 f1.9 Xenong*	$359.00	$219.00	$155.00
Alpa 7 f1.8 Switarg*	459.00		200.00
Exa f2.8 Westar MXg	85.00	46.00	35.00
Kine Exakta f3.5 Tessar g*		72.50	50.00
Exakta V f2 Biotar MX		119.00	100.00
Exakta VX f2 Automatic Biotar R.F. g	$ 392.00	$239.00	$ 190.00
Exakta VX f2.8 Auto Westanar	239.50	149.50	125.00
Exakta VX f1.9 Auto Xenon	341.70	197.00	155.00
Exakta VX f2 Auto Westapon	279.50	169.50	140.00
Contaflex II f2.8 Tessar Auto R.F. g meter	199.00		95.00
Contax D f2 Biotar P.S.g*	199.00	119.00	80.00
Pentacon f2.8 Westanar Autog*	249.50	119.00	95.00
Pentacon f2 Biotar pre-set*	249.50	129.00	100.00
Praktica FX f2.8 Westar MXg	99.50	42.50	30.00
Praktica FX f1.9 Primo MXg	149.50	67.00	45.00
Praktica FX f2 Biotar P.S. MX	169.50	84.00	65.00
Praktiflex f2 Biotar g		69.00	45.00
Rectaflex f2 Xenon RF g*, case & shade	350.00	137.50	105.00

35MM CAMERAS

	New	Used	Trade-in
Ansco Karomat f2 RF MXg	$125.00	$ 73.50	$ 55.00
Argus C-3 RF case and flash	66.50	32.00	28.00
Argus C4 f2.8 RF MX	84.50	46.00	35.00
B&H Foton f2 RF MX	498.00	265.00	200.00
Bolsey Jubilee f2.8 Setomatic R.F. Case and flash	79.50		40.00
Bolsey B22 f3.2 RF g*	69.50	35.50	30.00
Bolsey C f3.2 Reflex RF g*	89.50	38.95	30.00
Clarus f2.8 RFg*		37.50	30.00
Contessa f2.8 RF meter MXg*		85.95	70.00
Kodak 35 f3.5 RFg*		29.95	20.00
Kodak Retina IIC f2.8 R.F. g	135.00	105.00	65.00
Kodak Retina IIIC f2 R.F. g	185.00	117.50	85.00
Kodak Pony 828 f4.5 C*	29.50	17.00	12.00
Kodak Pony 135 f4.5 C*	29.75	18.00	12.00
Graphic 35 f3.5 R.F. Case & Flash	89.50		45.00
Retina II f2 Xenon RF		59.00	40.00
Kodak Retina IIA RF MXg		72.50	65.00
Kodak Signet f3.5 Ektar RFC*	87.50	44.50	37.00
Kodak Town & Country f3.9 RF case & flash	75.00	49.00	30.00
Minox IIIS chain & case*	139.50	85.00	60.00
Minox II f3.5g		49.50	30.00
Mercury II f2.7g*	41.50	19.00	12.00
Robot Royal f1.9 Xenon R.F.	295.00	168.50	135.00
Robot II f2 Biotar Rap Seq		54.00	30.00
Robot IIA f1.9 Xenon Rap Seq.g*	89.50	57.00	40.00
Robot Star f1.9 Xenon Rap Seq.g*	127.50	79.50	55.00
Voigt Prominent f2 RF MXg	220.00	131.50	100.00
Voigt Prominent f1.5 RF MXg	270.00	136.95	105.00
Voigt Vitessa f2 RF MXg	127.50	84.00	55.00
Voigt Vito II f3.5g*	54.50	29.50	22.00
Voigt Vito III f2 RF MX*	119.50	79.50	55.00

EKTACHROME (35mm 20 exp.)

3 times as fast as Kodachrome

1 Roll (Daylight or Indoor)	1.85
Developing and Mounting	1.25

ORIGINAL KODAK FACTORY PACKAGE

Reg. Price	3.10
Our Price	2.85
3 Rolls for	7.50

KODACHROME

35mm 20 Exp. Factory Packed Daylight or Type A

3 Rolls 5.55—6 Rolls 10.50

PLEASE INCLUDE 20c EXTRA FOR POSTAGE ON ALL FILM ORDERS

35mm EKTACHROME ANSCOCHROME RELOADS

These Reload Cartridges are Laboratory packed and Quality Controlled by MINIFILM in its own Air Conditioned Darkrooms. Twenty and 36 Exposure Cartridges are manufactured daily from 100 ft. rolls received fresh from Eastman Kodak and Ansco. Careful supervision and tremendous sales turn-over insures your getting reloads which are equal in quality and freshness to cartridges packed at the factory. THE ONLY THING DIFFERENT IS THE PRICE. Take a tip from film-wise professionals . . . **USE MINIFILM 1956 Dated RELOADS.** Daylight or indoor.

ANSCOCHROME 20 Exp.	Daylight or Indoor	ANSCOCHROME 36 Exp.	EKTACHROME 20 Exp.	Daylight or Indoor	EKTACHROME 36 Exp.
1 Roll 2.35		1 Roll 3.50	1 Roll 2.50		1 Roll 3.95
3 For 6.25		2 For 6.45	3 For 6.95		3 For 7.35

All Prices Above and Below Include Deluxe Developing and Custom Mounting

Bulk Ansco Chrome—28 Ft. with Free Daylight Bulk Film Loader—8 Free Carts, 8 Mailing Bags 14.75

Bulk Ektachrome—28 Ft.— 8 Free Carts, 8 Mailing Bags 16.75

KODAK'S MIRACLE 35mm TRI-X

A Revolution In Black & White 200 Daylight — 160 Tungsten

20 Exp. 6 Rolls	2.49	10 Rolls	3.79
36 Exp. 4 Rolls	2.39	7 Rolls	3.95

BULK FILM

50 Ft.	2.45
100 Ft.	3.95

SALE! SALE! SALE!

35mm — 20 Exp. — ANSCO COLOR

1956 DATED — FRAME NUMBERED

Prices Below Include Developing And Custom Mounting		Prices Below Without Developing	
1 Roll	1.85	1 Roll	1.15
3 Rolls	4.85	3 Rolls	2.95
6 Rolls	9.50	6 Rolls	5.25
10 Rolls	14.95	10 Rolls	8.29

28 FT. BULK ANSCO COLOR TONGUED — FRAME NUMBERED SEALED CANS — 1956 DATED

Prices Below Include Developing And Printing As Ready		Prices Below Without Developing	
1 Can	11.95	1 Can	6.75
3 Cans	22.75	3 Cans	18.25
5 Cans	33.00	5 Cans	28.50

8 Free Cartridges Per Each Can Enclose Postage — 10c per can.

30 DAY FREE TRIAL PERIOD
10% DOWN!

You Can Buy That Camera Now Under Minifilm's Time Payment Plan with just 10% Down—10% A Month. Trade In of Your Old Equipment Can Also Be Accepted As Down Payment.

NOW . . . TIME PAYMENTS AVAILABLE TO CANADIAN CUSTOMERS

35MM STEREO CAMERAS

	New	Used	Trade-in
Jiss Stereo f3.5¢	$ 69.50	$ 39.50	$30.00
Kindar f3.5 RFg*	99.50	74.50	45.00
Kodak f3.5¢*	84.50	51.95	37.00
Revere f3.5 RFg*	174.50	77.00	70.00
Realist 45 f3.5¢	88.50		40.00
Stereo Realist f3.5 RFg*	159.00	67.00	60.00
Stereo Realist f2.8 RFg*	198.50	119.00	95.00

2¼x2¼ REFLEX CAMERAS

	New	Used	Trade-in
Ansco Auto Reflex f3.5¢	$189.25	$ 84.00	$ 60.00
Ciroflex B f3.5¢		29.00	20.00
Ciroflex C f3.5/400¢	75.00	37.00	25.00
Ciroflex D f3.5¢	75.00	47.00	30.00
Ciroflex E f3.5/400¢*	99.50	58.00	40.00
Ciroflex F f3.2 MXg		67.50	50.00
Dejur f3.5¢*	99.50	49.50	30.00
Exakta 66 f2.8 Tessar MXg	319.50	185.00	150.00
Graflex 22 f3.5 C*	93.00	47.00	35.00
Hasselblad f2.8 Ektar/1600 C*	476.00	279.00	215.00
Hasselblad f2.8 Ektar/1000 C*	379.50	209.95	175.00
Ikoflex IA f3.5 Tessarg*	96.00	59.00	35.00
Ikoflex IIA Auto f3.5 Tessar MXg*	126.00	74.50	63.00
Kodak Reflex I f3.5g*		36.95	25.00
Kodak Reflex II f3.5g*		58.00	40.00
Rolleicord V f3.5 Xenar MX¢	134.55	99.50	70.00
Ricoflex VI f3.5g*	44.95	22.00	15.00
Rolleicord I f4.5 Tritoar		39.00	25.00
Rolleicord II f3.5 Triotar		47.50	30.00
Rolleicord III f3.5 Xenarg*		67.50	45.00
Rolleicord IV f3.5 Xenar MXg		86.95	63.00
Auto Rollei f3.5 Xenar		77.95	63.00
Auto Rollei f3.5 Tessar		87.95	55.00
Auto Rollei IIB f3.5 Xenarg*		98.50	63.00
Auto Rollei IIB f3.5 Tessarg*		107.50	90.00
Auto Rollei IIB f2.8 Tessarg*		149.50	110.00
Latest Rollei III f3.5 Xenar MXg	217.50	116.95	105.00
Latest Auto Rollei III f3.5 Tessar MXg	232.50	126.95	115.00
Latest Auto Rollei 2.8 C f2.8 Xenotar MXg	253.50	183.50	160.00

ROLL FILM CAMERAS

	New	Used	Trade-in
Ansco Super Speedex f3.5 RFg*	$119.50	$ 79.50	$ 55.00
Kodak Tourist II f4.5g*	72.50	39.50	28.00
Kodak Cheyron f3.5 RF 800 MX	198.50	142.50	100.00
Kodak Medalist I f3.5 Ektar		56.00	45.00
Kodak Medalist II f3.5 Ektarg*	304.75	112.00	80.00
Polaroid Highlander	69.95	42.50	30.00
Polaroid Landg*	89.75	39.50	30.00
Polaroid Pathfinder f4.5 RF	249.50	149.00	120.00
Super Ikonta A f3.5 Tessar RFg*	99.00	56.95	40.00
Super Ikonta B f2.8 Tessar RF g*	139.00	87.50	65.00
Super Ikonta BX f2.8 Tessar RFg*	163.00	102.00	75.00
Super Ikonta C f3.5 Tessar RFg*	114.00	59.00	45.00
Voigt Bessa II f3.5 RF MXg	124.50	58.95	50.00

PRESS CAMERAS

	New	Used	Trade-in
23 Ann. Graphic RF f4.5 lens		$ 83.95	$ 60.00
45 Ann. Graphic RF f4.7 lens		97.00	80.00
2¼x3¼ Century Graphic f4.5 KRF g*	$145.45	99.00	75.00
4x5 Super D Graflex f5.6 Ektar Auto Diag*	299.50	159.00	115.00
Omega 120 f3.5 Omnicron R.F. MX	239.50		130.00
2x3 Linhof Super Tech RF 3-lenses comp.	569.90	339.50	280.00
4x5 Linhof Super Tech RF f4.5 MX	389.75	207.00	165.00
2¼x3¼ Pacemaker Speed f4.5 KRFg*	313.95	147.50	130.00
3¼x4¼ Pacemaker Crown f4.7 KRFg*	267.45	139.00	103.00
4x5 Pacemaker Speed f4.7 KRFg*	315.45	172.50	135.00

SLIDE PROJECTORS

*Blower cooled

	New	Used	Trade-in
Argus PB 300, case*	$ 48.50	$ 27.00	$20.00
GoldE Cromatic Auto 300 W, case*	59.95	34.50	25.00
GoldE Manumatic 300 W *	58.50	27.00	20.00
GoldE Coronet 300 W, case*	44.75	22.00	15.00
GoldE Reflex 300 W, case 2¼ *	86.50	49.00	35.00
Kodaslide Merit 150 W	26.10	16.50	10.00
Kodaslide Highlux III 300 W case *	56.50	38.50	25.00
Kodaslide Signet 500 W*	72.50	49.00	35.00
Kodaslide Table Viewer 4x		27.00	20.00
LaBelle 22 Automatic 200 W *	69.00	46.50	35.00
LaBelle 55 Automatic 500 W *	95.00	55.00	40.00
LaBelle 75 Auto Remote 500 W case *	154.95	97.00	75.00
Nord Stereo 300 W*	99.50	69.00	50.00
Revere 555 500W Auto Case	79.50		40.00
Revere 888 500W Auto Remote Case	119.50		60.00
Revere 444 300 W*	69.50	39.50	30.00
SVE Instructor 300 W slide & strip *	89.50	57.50	40.00
TDC Headliner 300W Semimatic *	49.99	28.50	20.00
TDC Mainliner 300W Semimatic*	59.50	35.95	25.00
TDC Model D 300W Semimatic*	67.50	35.50	28.00
TDC Streamliner 500 W Semimatic *	84.50	49.50	35.00
TDC Duo 300W 2¼ *	67.50	35.00	28.00
TDC Duo 500W 2¼ *	84.50	52.50	40.00
TDC Project-or View 200W*	77.50	48.50	35.00
TDC Stereo Projector 500W*	169.50	99.50	80.00
TDC Stereo Projector View 300W*	144.50	96.50	70.00
Viewlex V 22C 300 W strip & slide *	86.75	55.00	40.00
Viewlex V33L 300W*	67.00	39.95	30.00
Viewlex V35L 500W*	79.95	47.50	35.00

8MM CAMERAS

	New	Used	Trade-in
B&H 134V f2.5¢	$ 89.95	$ 41.00	$ 30.00
B&H 172 B f1.9 Mag ¢	164.95	101.50	80.00
Bolex C 8 f2.8 Yvarg	89.50		40.00
B & H 252 f2.3 Montereyg	59.95	39.00	28.00
Bolex B8 f2.8 Yvar Turg	119.50	69.00	55.00
Bolex H8 Leader f1.9 Turg	259.50	145.00	115.00
Bolex 8mm Pancinor f2.8g	219.50	144.00	110.00
Kodak Brownie f2.7¢	37.50	21.95	15.00
Cine Kodak Magazine f1.9¢	149.50	82.00	65.00
De Jur Citation f2.5g	77.50	38.50	30.00
De Jur Fadematic f1.9¢	149.50	93.00	65.00
Keystone K-30 Capri f2.8g	54.95	34.50	25.00
Keystone K-32 Olympic f2.5¢	79.95	46.50	30.00
Keystone Bel Air f2.5 Magg	89.50	52.00	35.00

LOAD YOUR OWN 35mm ANSCO CHROME
(SO QUICK — SO EASY — SO ECONOMICAL)
A CHILD CAN LOAD A ROLL IN 90 SECONDS!
A 20-EXP. ROLL COSTS ONLY $1.11

1. A Daylight Bulk Film Loader
2. 28 ft. of Ansco Chrome—enough for 8 rolls (tongued—frame numbered—1956 date)
3. 8 Brand new cassettes. 4. 8 Mailing bags.

ALL FOR ONLY 8.88

WHY TAKE A CHANCE
With Poor Processing Of Your Treasured Color Shots . . .

Let MINIFILM'S expert Technicians develop and print your color films in our New Air Conditioned Laboratory. We are fully franchised Kodak and Ansco Dealers.

35mm DEVELOPING and MOUNTING
24 HOUR SERVICE

	12 Exp.	20 Exp.	36 Exp.
Ansco	.87	.99	1.77
Ektachrome	.87	.99	1.77
Kodachrome	1.15	1.49	2.25

120-620 Ektachrome or Ansco 1.00 per Roll

35mm SLIDE DUPLICATES
5 for 1.05 — 25 for 4.10

QUALITY COLOR PRINTS

2 x 3¼ — 21¢	4 x 5 — 58¢
2¼ x 3¼ — 24¢	5 x 7 — 88¢
3¼ x 4 — 48¢	8 x 10 — 1.89

35mm Contact Color Prints
10 Prints 1.00 — 20 for 1.65

YOU ASKED FOR IT!
12 Exposure — 35mm Film

12 EXPOSURE	1 ROLL	4 ROLLS	7 ROLLS
Tri-X or Plus X	.38	1.35	2.10
Ektachrome	1.23	4.65	7.85

Please enclose 15¢ for Postage & Handling

	New	Used	Trade-in
Revere 50 f2.8g	49.50	24.00	18.00
Revere 88 f2.5¢	74.00	33.50	25.00
Revere 88 f2.5g	97.50	45.00	35.00
Revere 84 f1.9 Turg	147.50	78.50	65.00
Revere 40 f2.5 Magg	99.50	53.00	40.00
Revere 44 f1.9 Mag Turg	154.50	94.00	65.00
Revere 861 f1.9 Magg	137.50	81.50	60.00
Revere 863 f2.5 Mag Turg	142.50	84.00	58.00

8MM PROJECTORS

	New	Used	Trade-in
Ampro Futurist 750W case	$149.95	$ 84.50	$60.00
B&H 253 Monterey 500 W Case	99.50	54.95	45.00
B&H Regent 500 W Case	179.95	104.00	80.00
Bolex M 8 500 W Case	169.50	114.00	85.00
De Jur 750 W Case	159.50	84.00	65.00
De Jur 1000 W Cordomatic Case	177.50	105.00	85.00
Keystone K70C Brightbeam 500 W Case	79.80	44.95	35.00
Keystone K80 500 W Case	99.65	67.50	45.00
Keystone K 95 750 W Case	119.50	74.50	60.00
Keystone K109 750 W Spticer Case	159.50	88.95	65.00
Kodak Brownie 300 W Case	62.00	39.95	30.00
Kodascope 8-71A 1000 W	110.00	72.50	50.00
Revere 777 750W Case	127.50		60.00
Revere 85 500 W	114.50	59.25	45.00
Revere 90 750 W	125.00	67.50	50.00

16MM CAMERAS

	New	Used	Trade-in
Auricon Cine Voice f1.9g	$ 749.00	$538.00	$375.00
Arriflex 16 (complete 3 lenses)	1990.00		
Bell and Howell Automaster Mag Tur f1.9		129.00	100.00
B&H 200 f2.5 Magg	174.95	108.00	85.00
B&H 200T f1.9 Mag Turg	244.95	157.00	125.00
B&H 70DA f1.9 Tur		149.00	110.00
B&H 70 DL f1.9 Turg	365.50	218.00	175.00
Bolex H16 Leader f1.9 Turg	269.50	149.00	120.00
Bolex H16 Leader (3 lenses compl)¢	399.45	236.00	180.00
Bolex H 16 De Luxe f1.4 Tur Octamtrg	486.00	319.00	250.00
Bolex Pan Cinor f2.8 case¢	349.50	199.00	165.00
Cine Kodak Mag. f1.9		58.00	45.00
Cine Kodak Royal Mag. f1.9¢	169.50	104.50	80.00
Cine Kodak Special II f1.9g Tur	990.00	599.00	400.00
Keystone A 8 f2.5¢	99.50	57.50	40.00
Keystone A12 f1.9 Turg	159.50	97.00	70.00
Keystone K50 f2.5 Magg	129.50	82.50	60.00
Keystone K55 f1.9 Mag Turg	175.00	117.00	80.00
Pathe Super 16 Turg	450.00	229.00	180.00
Revere 16 f1.9 Magg	182.50	87.00	60.00
Revere 26 f1.9 Mag Turg	212.00	105.00	70.00
Victor IV f1.9 Tur		99.00	65.00

16MM PROJECTORS

	New	Used	Trade-in
Ampro Imperial 1000 W case	$299.50	$197.00	$150.00
Bolex G-8-16 750 W (8mm & 16mm)	339.50	235.00	150.00
B&H 273A Statesman 750 W Case	199.95	117.50	100.00
B&H 173 Diplomat 1000 W Case	299.95	185.00	150.00
Keystone A82 750 W Case	139.50	75.50	60.00
Keystone K161 750 W Spticer Case	159.50	85.00	65.00
Kodascope Royal 1000 W	240.00	164.00	115.00
Revere 48 750 W	160.00	95.00	60.00

16MM SOUND PROJECTORS

	New	Used	Trade-in
Ampro DeLuxe Stylist 1000 W case	$419.85	$265.00	$185.00
Ampro Premier 40 1000 W case	579.00	397.00	250.00
B&H 285C 750 W Case	449.95	249.50	200.00
B&H 285 B1 1000 W Case	514.95	319.00	230.00
B&H 202C 1000 W Magnetic Case	699.00	444.00	375.00
Kodascope Pageant 1000 W Case	375.00	259.00	190.00
Movie Mite 63L M 300 W Case	275.50	163.00	115.00
Revere SP16 750 W Case	325.00	163.00	135.00
Victor Lite Wt. 60-A 750 W Case	395.00	269.00	180.00

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35C Federal 135 f4.5 storway	49.95	29.50	20.00
23D Federal 240 f7.9 storway	24.95	14.50	10.00
23D Federal 269 f6.3 storway	39.75	24.50	15.00
23C Federal 279 f6.3 storway	46.95	28.50	20.00
23CL Federal 269CL f6.3 storway	53.00	32.00	25.00
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23CL Federal 315CL f4.5	80.00	49.50	40.00
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45C Federal 470 f4.5	129.50	82.50	60.00
45CL Federal 450CL f4.5	114.75	69.50	50.00
57C AU Besseler 57MB AutoFocus	239.75		160.00
45C AU Omega D3 AutoFocus	207.50		105.00
23D Fotolarger Merit f6.9	23.95	14.50	10.00
23D Fotolarger D69 f6.9	34.95	20.50	15.00
23D Fotolarger D45 f4.5	48.20	27.50	20.00
45D Fotolarger 100DC545 f4.5	93.95	56.50	40.00
23C Solar 120	69.50	42.00	30.00
45D Solar 45D	86.50	49.00	35.00
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De Jur Dual Professional	26.95	$15.50	10.00
GE WD 68	24.50	16.50	8.00
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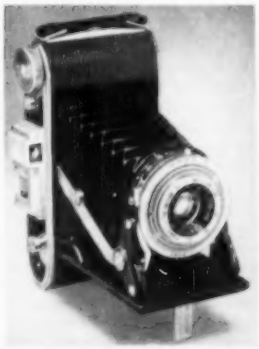

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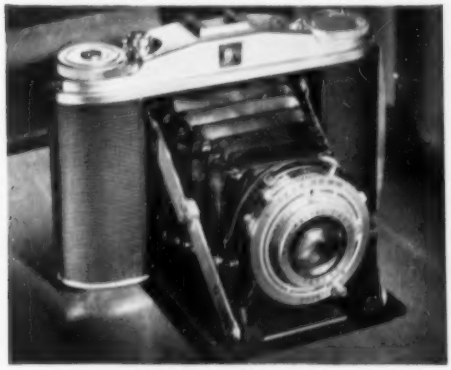

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legal problems in photography

By George Chernoff and Hershel B. Sarbin
Members of the Bar of the State of New York

STATE POLICING OF PHOTOGRAPHY LOSES MORE GROUND

ADD TWO MORE notches of victory to the battle-scarred gun of the photography profession.

Successfully warding off further attempts in the age old assault on the freedom of the profession, the Montana Supreme Court struck down the Photographic Examiners Act which required persons desiring to engage in portrait or commercial work, or photo finishing to procure a license. The Act provided that those engaged in the practice of photography, when it took effect, should be granted a license upon application, but others shall give satisfactory evidence as to competency and fitness to practice photography based on technical knowledge and business integrity. The Court said that the only basis for the Act was to create a monopoly for those persons fortunate enough to be included within the formula of the Act prior to the date it became effective and that the Act was not in the interest of the general welfare. It also condemned the law on the ground that it gave the examining board unlimited authority to choose who was qualified as a photographer.

In another arena, the Nevada State Assembly refused to act on a proposed law for licensing photographers. Several of our readers joined in this fight to kill the bill and wrote to us requesting ammunition. We forwarded the previous history of similar legislation for the use of the local photographers interested in defeating the measure and are happy to announce the successful results. We are extremely gratified at the outcome and pleased to have been of help. Every time the subject of regulating photography comes to the fore we are reminded of the expressions of courts which have come to the aid of photography in the past.

An Arizona Court in 1941 held:

> The *business or profession* of taking photographs of people, animals and things does not need regulation. It is one of the innocent, usual occupations in which everybody who wishes may indulge as a pastime or a hobby or a vocation, without harm or injury to anybody, or to the general welfare, or the public health and morals, or the peace, safety and comfort of the people. It needs no policing.

In 1935 a photographer was convicted in a Hawaiian Court of practicing without a license. The conviction was overruled on appeal. The Court said:

> More specifically the question is, was it within the constitutional power of the legislature to exclude from the practice of photography for profit all persons who had not complied with the provisions of the Act? The answer to this inquiry depends on the nature of photography—whether as an occupation it is innocent and innocuous or whether it is infected with some quality that might render it dangerous to the morals, the health, the comfort or welfare of those who constitute the public. If the latter is true it is within the police power of the legislature to place upon it the regulations and restrictions contained in the Act. If, on the other hand, the practice of photography is harmless and without detriment to the public welfare, it was beyond the power of the legislature to restrict it to those having a certificate of proficiency.

The Court concluded that the act requiring a license for the practice of photography "is an unconstitutional encroachment upon the liberty of the citizen to choose and pursue an innocent occupation."

In 1938 a Tennessee Court, in overruling similar legislation said:

> We find it difficult to perceive just how the licensing of photographers and regulation of the taking and finishing of pictures * * * has any real tendency to protect the public health or the public morals.

A Georgia Court, in striking down similar legislation said:

> Was the General Assembly authorized, under the police power, to impose these various regulatory conditions upon those engaged in the *business of photography* or photo-finishing; or more concretely, was there any basis affecting the public interest for the requirement of examination as to competency, ability, and integrity?

The Court concluded there was not.

The only discordant judicial note on the licensing question appears to have been sounded in a decision of the North Carolina Courts. It was there decided by a three to two decision, that a photography licensing act was constitutional. However, the dissenting judge in that case said: "I am therefore unable to conceive how the practice of photography has such a rational and substantial relationship to social needs or to public health, safety and good morals as to make it a subject of legislation under the police power of the state. * * * The regulation of business and professions, through administrative licensing, has heretofore been limited to those professions having a direct and positive relation to the health, safety or morals of the community. The trade of photography bears no general resemblance to any of the professions indicated * * *. While photography requires some skill, it is the same type of skill required by other trades and vocations." While this decision is only a dissenting decision and does not represent the view of the majority of the North Carolina Court, it seems to be the views of the great majority of the courts in the United States. In other words, they have freed photography from the shackles of the police power of the states and from attempts to regulate it.

The authors of the legal column regret that each specific question submitted by readers cannot be answered directly in the column. The questions are used, however, as the basis for columns on a particular subject and, wherever possible, the authors do send a reply directly to the reader. Because your letters help them to decide what subjects you wish to have covered in the column, the authors invite your questions and your suggestions on the contents of future articles.

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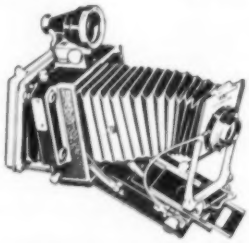

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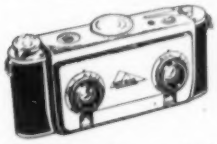

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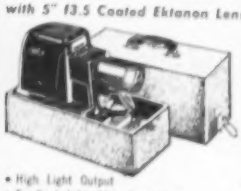

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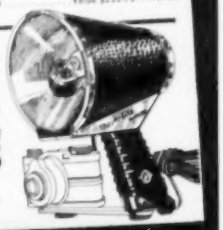

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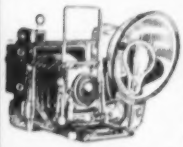

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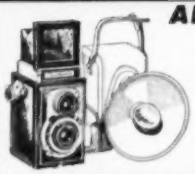

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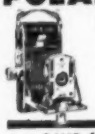

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NEW LIFE FOR OLD PAPER

This simple formula kills stale-paper fog and often adds desirable contrast

By L. M. A. ROY

EVERY photographer, whether he's an amateur or a professional, likes to use nothing but fresh materials, for that's the best way to clear the path to the final goal of all serious camera users, fine print quality.

Perhaps nothing is supposed to be more unfavorable to photographic excellence than paper of advanced age that has lost its ability to reproduce the tones of the negative as a "younger" paper might, and which hides its mediocre performance under a layer of fog soon after it is placed in the developer.

Needless to say, there comes a time in everyone's experience when he wants to make prints—or must—and finds he has no paper on hand but that partly used box that's been hibernating on the shelf for a long, long time. Problem: how can he get passable results from such impossible material?

I used to think there was no answer to that one, but recently found I had been mistaken. The "solution" (one of acidulated potassium bichromate, obtainable from any camera dealer) has been found to work well with the oldest paper I could find anywhere—some rough buff made 19 years ago!

Anti-foggant solution

Potassium bichromate C.P. .....20 grains
Water.....5 ounces
Then add hydrochloric acid C.P., about one dram.

The best print that could be made on 19-year-old paper without adding bichromate solution to developer as described.

Made on paper from the same box but a few drops of the bichromate solution were added to each ounce of the developer.

When using paper known to be old or which fogs after a short time in the developer, add about four drops of the solution to each ounce of developer, or more if the fogging continues.

I have found it advisable to give a rather full exposure so developing time is a bit on the short side. Long soaking in the developer tends to neutralize the treatment.

The developer will be yellowish from the bichromate and as this is poisonous care must be taken to keep it out of cuts and abrasions. Any such contact should be followed by thorough cleansing with mild soap and warm water.

The solution has been found to add contrast to some papers.

The accompanying illustrations were made on the 19-year-old paper and show the great improvement effected by the simple formula. Incidentally, it works well with stale film, too.

(Proprietary solutions may be as effective but this method is one that has worked well in practice.)—Ed.—▶

Professional Preference

...*best way to measure a camera's worth!*

Wallace Litwin uses his Canons (*Serial Nos. 50,065 & 50,095*) for his Magazine Assignments

Wally chose Canon because it gives complete versatility for shooting under the most varied conditions. And, it is sturdy enough to take the "beating" a globe-trotting photographer usually gives his cameras. Wally uses both on his assignments (for Coronet, This Week, Colliers, etc.), each with a different focal-length Canon lens, or he loads one with color, the other with B & W film.

Wally found the Canon Copying Unit ideal for this extreme close-up of a fly beside the head of a pin. He uses the Canon extension tubes in combination to achieve image magnification. His 50mm f:1.8 lens was used here with a single flood for lighting.

The Stackpoles take their Canons (*Serial Nos. 78,291 & 77,576*) on an Underwater Vacation

When Peter and Hebe Stackpole vacation, they often spend much of their holiday underwater, for they are the nation's most enthusiastic underwater-photography couple! And quite naturally, they take their Canon cameras with them, because Canon is ideally suited to even this unusual photographic task. Whether exploring the ocean's sub-surface, or up among the outer strata of earth, Canon's simplicity of controls, and complete versatility, make it the professional's No. 1 choice!

The unusually wide angle of view and edge-to-edge sharpness of the Canon 28mm f:3.5 are most appreciated underwater because the water itself acts as a lens, cutting down the normal lens angle.

Leo Stashin takes his Canons (*Serial Nos. 81,959 & 85,561*) on a Circus Assignment

Leo prefers a Canon to catch the glitter and excitement of the "Big Top" because of its versatility and unerring performance under the toughest conditions. He uses both his Canons on these projects . . . loading one with color; the other with B & W. Or, he often uses different focal length lenses on each—ready for immediate action!

Leo uses his Canon Auto-up for extreme close-up (still using Canon's rangefinder for focusing).

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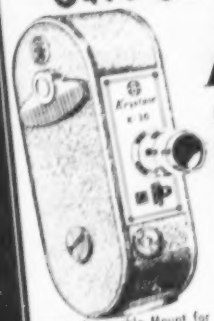

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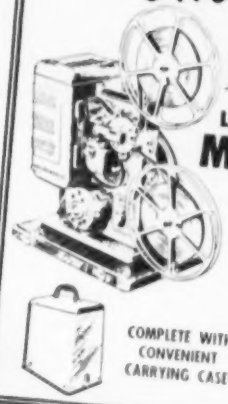

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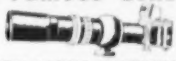

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new books

HOW TO TAKE BETTER PICTURES by Arthur Goldsmith, published by Maco Magazine Corp., New York, and Bobbs-Merrill, New York and Cincinnati. Illustrated, 6½ x 9½, 144 pages. Soft-cover edition (Maco), 75 cents; hard-cover edition (Bobbs-Merrill), $2.75.

The beginner generally find himself in a wilderness when he casts about for coherent knowledge that will take him beyond the instruction-book, snapshot stage. Elementary books, in spite of the enormous increase in how-to photographic books published these days, have been scarcer then hen's teeth and perfect negatives. But now Arthur Goldsmith, features editor of POPULAR PHOTOGRAPHY, has changed all that with his *How To Take Better Pictures*, which covers the elements of photography more effectively than it ever has been done before. Goldsmith has come up with a book not merely written, but visually designed to make a photographer out of anyone with no knowledge to begin with, and a better photographer out of anyone who hasn't been too happy with the prints he has been plucking out of the wash water. The text is brief, lively, and to the point; and, teamed with the exciting pictures and functional layouts, it makes learning photography an entertaining adventure. . . . This is *the* book for the beginner.—B.D.

MAKING AND SHOWING YOUR OWN FILMS, by George H. Sewell FRPS., published by Pitman Publishing Corporation. Cloth bound, 5¼ x 8, illustrated, 311 pages, $3.95.

The home film-maker's problems of equipment, subject, shooting, and projection are discussed in terms of presenting amateur motion pictures of quality and interest.

UNDERWATER PHOTOGRAPHY AND TELEVISION, by E. R. Cross, published by Exposition Press. Cloth bound, 5½ x 8¼, illustrated, 258 pages, $6.00.

The theory, techniques, and history of a comparatively new field of photography are presented with complete lists of reference books and technical terms.

GEISHA OF PONTOCHO by Francis Haar, published by P. D. and Ione Perkins, South Pasadena, Calif. Cloth bound, 7⅜ x 10⅜, illustrated, $6.

Francis Haar, whose photographic books on Japan have become well known, has profusely illustrated this book by P. D. Perkins on the history of Japan's most famous Geisha district.

PHOTOGRAPHY WITH A PRAKTIFLEX by R. H. Bomback, published by The Fountain Press, London, and distributed by Rayelle Publications, Philadelphia. Cloth bound, 5½ x 8¾, 132 pages, $3.

A detailed manual on the use of the 35-mm Praktiflex camera and its accessories with examples of photographs made with this equipment, including pictorial, photojournalistic, sports, nature, and portrait subjects.

BEGINNER'S GUIDE TO COLOR PHOTOGRAPHY by Joe Costa, published by Greenberg: Publisher, New York. Paper bound, 5 x 7¾, illustrated in color and black-and-white, 104 pages, $1.95.

A brief introduction to the problems of color photography by a well-known professional.—

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candid shots by the Editors

Contest: Last Chance!

This is it—your last reminder to enter photographs in this year's International Picture Contest. Closing date is July 1, and already the Contest Editor's office is stacked to the ceiling with bundles and packages of pictures. If yours aren't among them, better put them in the mail now and avoid the inevitable last-minute rush. See you in the winner's circle!

Prize-Picture Poll Results

In the April issue, along with an article on how to win picture contests, we reprinted six first-prize winners from the POPULAR PHOTOGRAPHY International Picture Contests, and asked our readers to vote on their preference among them. The results have been tabulated, and the winner is Farrell Grehan's *City Child*, with 412 votes. A. Aubrey Bodine's *Oyster Dredging* was a fairly close second with 366; W. Starr Suydam's *My World Is Growing* got 246; David M. Stanley's *Ring Bills at Gull Island*, 234; Leon Levinstein's *Boys*, 149; and Esther Bubley's *Moroccan Peasants* trailed with 42 votes. We have no particular comment to make on the outcome of the poll, and we don't feel it indicates any strong tide of popular opinion in any direction. Draw whatever conclusions you like.

Germain Awards for distinguished service to photography in 1954 were presented to Eastman Kodak Co. and to Bruce Downes, editor of POPULAR PHOTOGRAPHY. Here Joseph Costa (left) a previous winner, presents plaque to Downes; next to him are Frank Wakeley, a Kodak official, and Milton W. Willenson, registrar of Germain School, award sponsors.

What's Going On?

Around the country and around the world, photographers are forever doing interesting things and making interesting plans. Here are some of them that have come to our attention lately. . . . The American Society of Magazine Photographers this spring made its annual awards for significant contributions to photography, in memory of Bob Capa and Bob Leavitt, two of its members who died "on the job." Capa himself got one of the awards, as did Werner Bischof, who was killed last year in Peru while pursuing a story. Edward Steichen, creator of the prodigious *Family of Man* show (featured in our May issue) received an award, and another went to his assistant, Wayne Miller. Eastman Kodak Co. got a citation for "significant advance in photographic emulsion making" in connection with its development of Royal Pan and Tri-X films. . . . Early in May, a couple of hundred thousand people visited the Paris Biennial Exposition of Photography and Cinema, sponsored by the French government, with the participation of 200 exhibitors from ten countries including the U. S. Anyone who showed up without a camera was promptly furnished with one by the management, and the pictures they took were processed right on the premises. This is the second of the big Western European photographic shows, the other being Cologne's *Photokina*, held in alternating years with the Paris exposition. . . . Speaking of *Photokina*, its director, L. Fritz Gruber, visited POPULAR PHOTOGRAPHY during a recent American trip. The suave and articulate Mr. Gruber came to New York, Washington, Atlantic City and Rochester to make arrangements for next year's bigger-than-ever *Photokina*. . . . When the Photographic Society of America holds its annual convention in Boston in October, members will find the city a thoughtful and enthusiastic host. Governor Herter has proclaimed October 2 to 8 as Photography Week in Massachusetts.

Tell Us What You Like

Fill in this coupon, showing your response to the features in this issue, and mail to Candid Shots, POPULAR PHOTOGRAPHY, 366 Madison Ave., New York 17, N. Y. It will help us keep improving your favorite magazine!

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Steady!	☐	☐	☐
Underwater Box Camera	☐	☐	☐
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Try Trees	☐	☐	☐
How to Make Perfect Negatives	☐	☐	☐
Microphen Developer	☐	☐	☐
Underwater Movie Camera	☐	☐	☐

Correction . . .

This photograph of Babe Ruth's farewell in Yankee Stadium, which won a Pulitzer Prize in 1949, appeared in our May issue with an incorrect credit line. The picture was made by Nat Fein of the *New York Herald Tribune*.

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*PAN CINOR – 70	16 mm	17.5 to 70 mm	7' to inf.	F: 2.4	$449.50 with case
*PAN CINOR – 100	16 mm	25 to 100 mm	7' to inf.	F: 2.4	$449.50 with case

†Coupled viewfinder with parallax correction *Through-the-lens viewing

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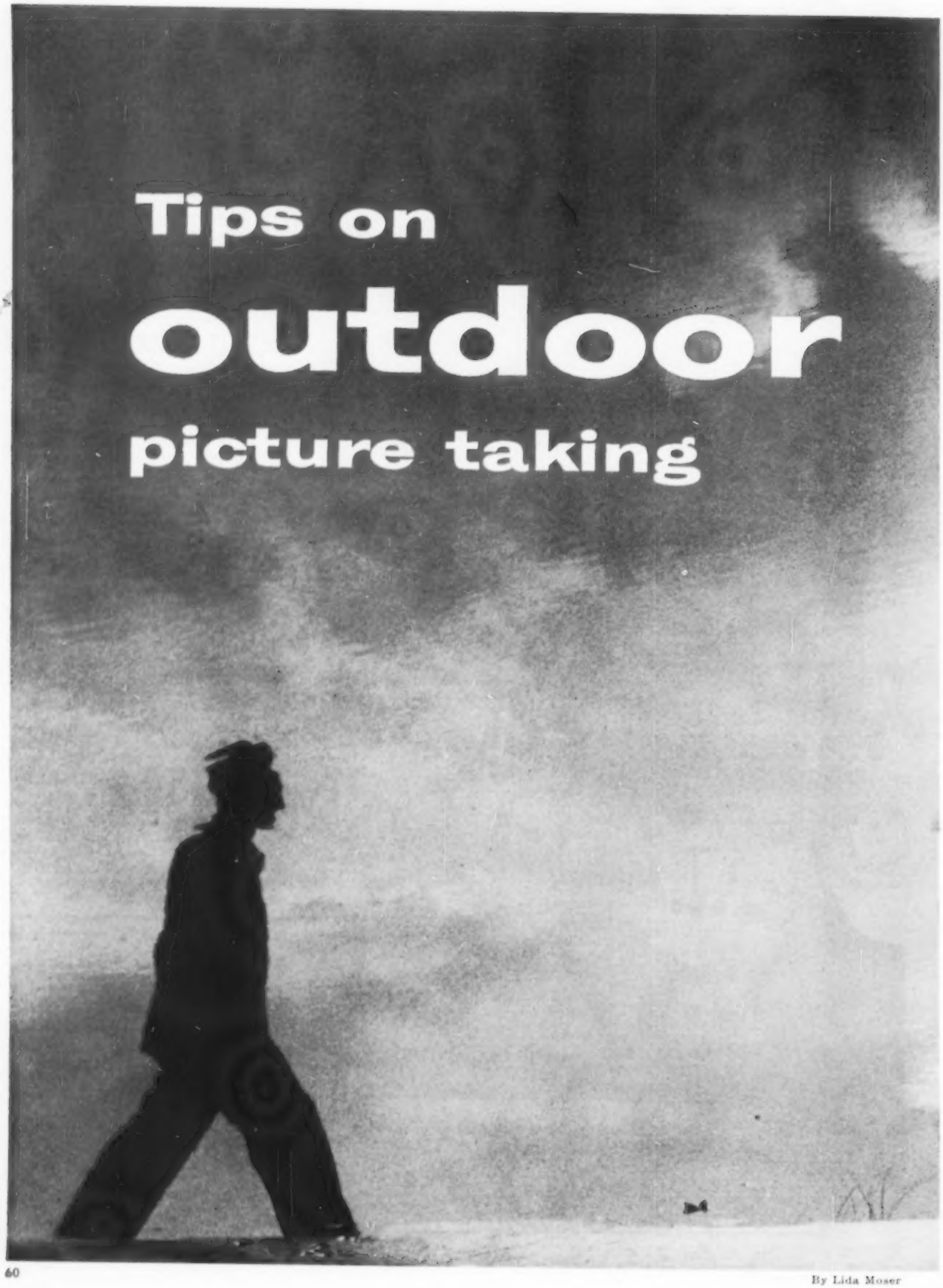
Tips on outdoor picture taking



By Lida Moser

Here are some of the ideas and methods you'll read about in this issue:

Using your viewfinder

Ways to hold a camera steady

Underwater pictures with a box camera

For portraits—get out of the sun

Outdoor color exposure

How to photograph leaves

Fill-in flash for color

Six ways to get dark skies

Portfolio of unusual outdoor pictures

Using trees for props

How to control negative contrast

Bright tree flowers of spring are an ideal complement to a little girl's eager smile.

Reaching for a branch gives a child something graceful to do, and avoids "posing."

by Phoebe Dunn

Low trees with crotches kids can peek through are convenient props that add interest and frame a face.

Choose a texture congenial to a child's smooth skin, like this white-barked birch, beech, or cherry.

Silvery weeping willow leaves surround this little girl, and backlight lends depth and enchantment.

Need a natural setting for children's portraits?

Try trees

IF THERE'S a beautiful child model in your family or your circle of friends, you're always on the alert for new, fresh props and situations that help you avoid the hackneyed "take-my-picture" poses that make for commonplace kid pictures. Well, here's an idea. Everybody from Providence to Pismo Beach has a tree in his backyard, or within walking distance. Next time you arrange for a day of shooting with the little boy or girl, think of the possibilities trees offer for background and counterpoint to your small subject. All kinds of trees—ashes and aspens, beeches and birches, cedars and cottonwoods—can make "natural habitats" for kids. Let them reach, climb, jump, play peek-a-boo; let them share the picture with the tree in their own way. Use a fast shutter to catch action when they're excited. Don't be afraid to open the aperture wide; the out-of-focus foreground and background can add to the feeling of depth, but be sure you're sharply focused on the center of interest! All these pictures were made with a twin-lens reflex, but any type of camera can do as good a job.—

Steady!

Rifle-shooting stance has the same elements as good camera-holding position. Feet give firm support if spread, one foot behind other.

Here's how to hold an eye-level or waist-level simple box camera . . .

Box cameras usually are manufactured with a fixed shutter speed of about 1/30 second. Because of this slow speed, the photographer must hold the camera with a minimum of motion. There are two basic types of box cameras—the waist-level and the eye-level. The waist-level is held with hands at each side of camera, fingers supporting it from bottom, elbows close to sides and thumb ready to release shutter. It can also be placed on a horizontal support with a pencil under it to raise the front. The eye-level camera, held in standing position, requires that the photographer anchor his body by spreading his feet apart, one foot slightly ahead of the other. For extra support, the photographer can take a sitting position, raise his knee, and hold his left arm steady against his knee.

small subject. All kinds of trees

a twin-lens reflex, but any type of camera can do as good a job.—▶ 63

—if you want your pictures sharp

By CARL LINDQUIST
Photographs by the author

MANY photographers blame their lenses for unsharp pictures *when the fault lies in the unsteady way they hold their cameras.* Camera motion is one of the commonest errors in photography. Even at 1/100-second shutter speed settings, unsteady camera handling will be evident in a picture. Take a moment and examine the way you hold your camera. Is there chance for motion when you press the release? Are you comfortable? Do you wobble at the hips?

Today, with available-light photography becoming more popular, a firm stance is more important than ever.

Your feet, elbows, and hands are the three focal points in a good camera-holding position. The camera should be held comfortably and firmly. To steady your whole body, take a deep breath before you shoot, and squeeze the shutter release as if it were the trigger of a rifle. The kind of steadiness necessary for accuracy in marksmanship is just as important in photography.

Each camera, because of the shutter release position and finder placement, calls for a specific way of holding it. We have taken, for this story, the prototypes of most cameras on the market.—▶

. . . a folding-type camera

Folding-type cameras are held like box-type cameras. When shooting a vertical picture, hold one elbow close to your body and make it the major support. Other hand keeps camera in position. Metal "leg" on bed of some makes can be flipped out, allowing unit to rest levelly.

. . . and a press camera

Press-type cameras are easier to handle if battery case of flashgun is on camera and shutter is released through the solenoid. Hold gun with right hand and slip left under strap, allowing fingers to grip the camera body. When shooting fast-moving subjects, place left hand under bed of camera, and left elbow close to body. Right hand is on gun. Then, pan with the subject.

Continued on next page

Cameras courtesy Arax Photographic Co., Poughkeepsie, N. Y.

Here's how to hold two types of single-lens reflex cameras . . .

Vertical eye level

Straight down with strap

Overhead with strap

Wall support Ⓐ

Wall support Ⓑ

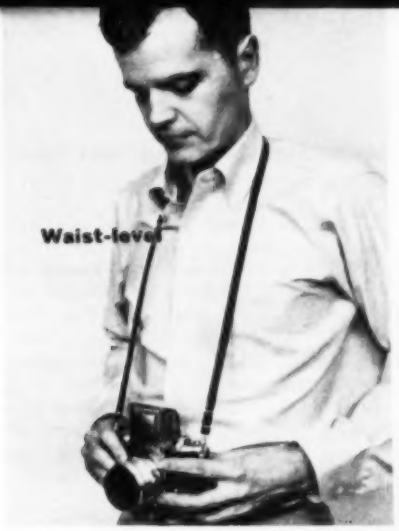
Waist-level

. . . and a twin-lens reflex

Twin-lens reflex cameras are designed primarily for waist-level viewing, but many models offer eye-level viewing either through a sportsfinder or optically through the viewing lens. The neck strap is used for added support by pulling it taut against your neck when shooting overhead, straight down, or at waist level. For pictures where you want to remain as unobtrusive as possible, camera is used at a right angle. At slow shutter speeds, walls, the floor (with pencil under camera), or a knee from sitting position can be used to help steady the camera. Depending on position taken, camera can be released with the thumb or the forefinger.

Wall support

Strap support



Single-lens reflex cameras fall into two groups, the eye-level (prism) and the waist-level types. The eye-level reflex can be held like rangefinder-type 35-mm cameras with only a slight variation when supports are used. Waist-level 35-mm reflexes offer a variety of holding positions. Using the neck strap as an added support, the camera can be held overhead, straight down, or at waist level. The heavier 4x5 reflexes are less maneuverable. Most pictures should be taken with camera at waist level shooting forward or at a right angle. However, the 4x5 reflex can be held over head for short periods of time without tiring hands and arms. Waist-level horizontal supports are a great aid with the larger single-lens reflex cameras.

Continued on next page

Here's how to hold a 35-mm rangefinder-type camera . . .

Horizontal

Vertical

Rangefinder-type 35-mm cameras are designed for eye-level operation. Grip the camera with a hand on each side of camera body. Elbows, again, are held in close to your body. When shooting at extra-slow shutter speeds, use wall to lean against, knee as a brace, or use a wrist strap which can be purchased at most photographic supply stores. Shoulder pod (shown on next page with movie camera) can be used with 35-mm still cameras. Because of large blow-up necessary in enlarging from small negatives it is important to hold 35-mm cameras as steady as possible while shooting.

Wall support

Knee support

Wrist support

. . . and two types of motion picture cameras

Motion picture cameras must be held as motionless as possible if you don't want your audiences to get "see-sick." With simple box-camera-type movie cameras, hold elbows in close to your sides, and whenever possible use a support such as a wall, tree, or fence. You can also shoot from sitting position and rest camera on knee, or you can lean elbows on table while shooting. In panning, it is important to move camera slowly, pivoting body at the hips. Your feet should be spread, one foot slightly forward. Cord attached to camera is stepped on and pan is made as camera is held taut with cord. Shoulder pod can be used for straight shots or in panning.

Panning motion

Body support

Panning with cord

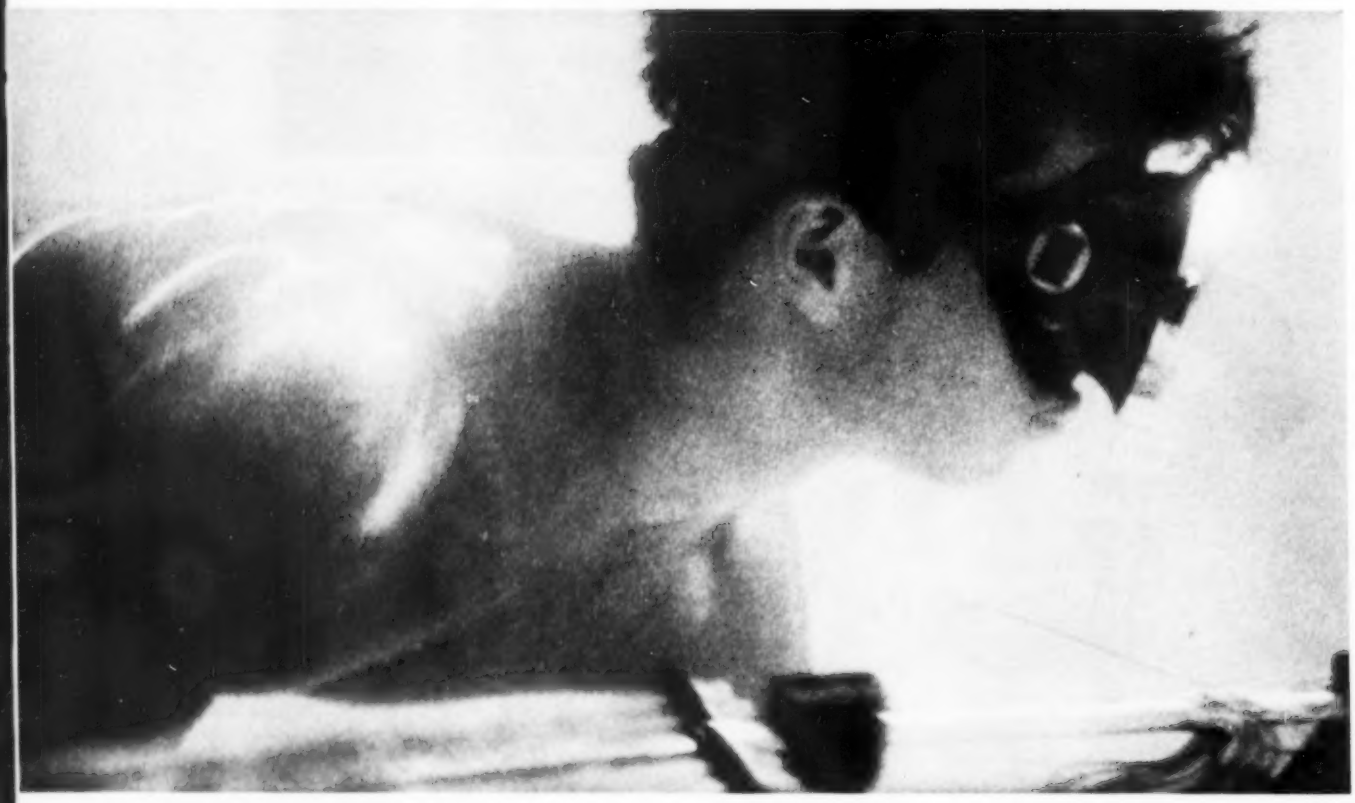
Wall support

Elbow support

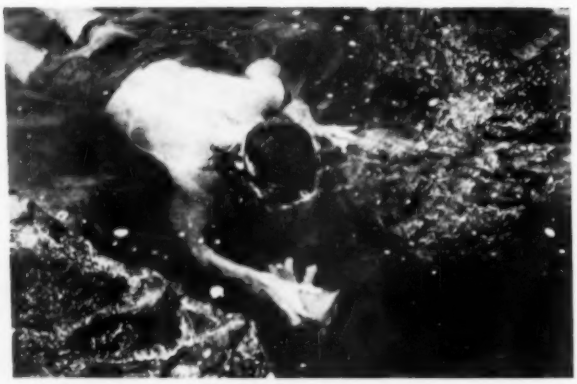
Camera strap

Shoulder pod

Underwater



How to use it



After blowing up glove which contains camera and "window" (left), the outfit is tested for leaks. Properly constructed unit (insert, left) will float. Swimmer (above) watches for air bubbles to rise after submerging it in small pool. Bubbles indicate leak in the glove.

box camera

By GEORGE GILBERT

Photographs by the author

SUCCESSFUL underwater pictures (like the shot at left) can be made with a simple box camera and close-up attachment placed inside a large surgical rubber glove that has a Plexiglas disk mounted into it. Complete cost of this easy-to-assemble outfit without the camera is approximately $2.50, and includes a spare glove in case the one in use tears.

This system of underwater photography was developed by sixteen-year-old Jerry Chester, president of the *Five Fathoms Club* of Roslyn, Long Island, N. Y. Here's how it works: After box camera with close-up attachment is placed in rubber glove, and Plexiglas "window" inserted, glove is aimed by guessing and release is pressed through the rubber glove. After making shot, photographer emerges, winds film through the glove. Exposure numbers are seen through light-colored glove.

Keep these points in mind in making underwater pictures: 1. Do not try shooting in muddy waters. 2. Since you are using a simple camera which has a shutter speed fixed at about 1/50 second, try to keep camera as steady as possible when shooting. 3. Best pictures are likely when shooting fish, swimmers, or other subjects from fairly close-up positions, close to surface of water. 4. Use a fast-emulsion-speed film.—

How to make it

Complete underwater outfit is shown here. It included: (from left to right) light-colored surgical glove, Plexiglas disk, close-up attachment, Brownie Holiday box camera.

Close-up attachment is placed over lens of camera.

Glove is carefully stretched around the camera unit.

Plexiglas disk is inserted at opening in rubber glove.

See motion picture section for how to make underwater films

While wading along the shore (left), this setup can be used to photograph small marine life. Using raft (above), the photographer can place the unit below the surface of water and shoot. Camera is aimed at subject by guessing field of view since finder can't be used.

For portraits- beware of the sun!

By HENRY MACAFEE

THE air lately has been alive with words about the wonders of "natural" light, but few of the pundits seem to be aware of the fact that there are a million variations of indirect, so-called natural light. Certainly, when it comes to making outdoor portraits, it is not only smart but logical to *beware of the sun*. Nobody in his right mind in ordinary activity faces the sun. He may do so early in the morning or late in the afternoon, but at any other time a sane person avoids looking directly into the sun. Therefore, it is illogical to make a portrait in circumstances that seldom, if ever, occur. Logically, direct sunlight should always be avoided if relaxed, happy faces are preferred to agonized squints. Let's take a look at a few varieties of useful, indirect, diffused sunlight.—▶

aimed at subject by guessing field of view since finder can't be used.

The shadow side of hot sunlight

Note the harsh lighting and the consequent squint (above) when direct sunlight falls on face of an attractive model. By having your subject turn away from the sun with her face completely in shadow (right), three things are accomplished: 1) her features are relaxed, 2) the modeling is soft, and 3) the overexposed background produces a luminous dimension. The trick here is to be sure that distinguishing features are properly lighted and exposed. Avoid patches of sunlight overaccentuating an ear or tip of nose. Be sure to expose for the face.

←

A variation of this technique may be seen at left. Here the model is posed on a rooftop. Again face is turned to the shadow side of the hot sun. But here she is kneeling on a sheet of white paper, which reflects strong diffused light to face with more luminous results.

Overcast and rainy days can be brilliant

There is a surprising brilliance in light that prevails at ground level on overcast days and during or right after a rain. The air is strangely clear and the clouds above give to the diffused light a soft but penetrating quality. The sombre mood of the light at such times adds a certain seriousness to a picture, and oddly enough this added note of seriousness often makes a picture of a pretty girl come to life. In both of the pictures above there is a luminous quality to the light that is not lessened by the absence of deep, harsh shadows. This is also a searching light, for note details in dress and necklaces, and the crisp, clean contrast of model against wet pavement.

Light bounced from wall of building

Another way to avoid hot sunlight is to move your subject into a shady area where the intense rays bounce from a building wall or sidewalk. This diffused light produces soft, pleasing modeling. It is a flattering light and a relaxing one. Note that model's left side is lighter than right because wall of building at her left was closer, hence reflected more light onto her face.

Partial enclosures can be useful

A partially open porch or an automobile with its large window areas can provide an excellent portrait studio. If the interior is light in color, the reflected light will be very luminous, indeed, lending an unusual plastic quality to the skin texture. In such situations bright sunlight is diffused by reflection from the ground and atmosphere outside as well as from the interior wall surfaces. In this picture some direct rays trickled in to produce interesting accents.

Color exposure

color series part 3

By NORMAN ROTHSCHILD

HOW does shooting color compare to taking black-and-white pictures? Just what are the color photographers' chances for getting successful exposures under a variety of conditions? Have the new color films made it possible for the color worker to shoot as easily as in black-and-white?

Compared to most black-and-white film, color still is very slow. Even the new higher-speed color films such as 35-mm Ektachrome and Anscochrome are slow when compared to Tri-X and even Super-XX. This means that even with the new films, which are quite an advance, color snapshooting is still restricted to fairly good light, except for those having high-powered *f*/2 and *f*/1.4 lenses. Poor light usually will still mean time exposures and tripods.

Outdoors in good sunlight and for average subjects the exposure for the slower color films such as Kodachrome, Ansco Color, and the 120 and 620 Ektachrome will be about *f*/6.3 and 1/50 second. For the newer films like 35-mm Ektachrome and Anscochrome and color negative materials like Kodacolor and Ektacolor roll film, exposures will be about *f*/11 at 1/50 second. (For snaps of family and familiar scenes, these figures can be committed to memory and are all the "dope" needed for successful color (*Continued on page* 127)

1 Open shade. Low-contrast illumination of open shade is especially good for color portraits. Increase exposure about 3 stops more than normal and use a skylight filter to prevent excess blue.

2 Side- or backlighting. As a rough guide increase exposure about ½ stop for sidelighted subjects and about one stop for backlighted subjects to record adequate detail in the shadow areas.

3 Night pictures. Snapshots of brightly lighted night scenes can be made with fast color films like Anscochrome and 35-mm Ektachrome. Las Vegas scene was made at 1/20 sec and *f*/4 on fast Ektachrome.

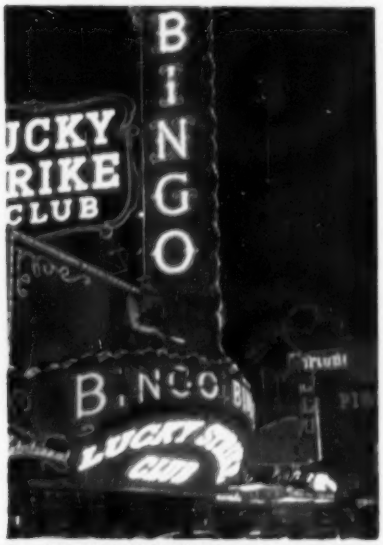
4 Sunsets. The results of recording sunsets in color are somewhat unpredictable, but it's well worth trying. Best to give a series of different exposures. This one was shot at 1/25 sec at *f*/4.5.

5 Brilliant scenes. Beware of overexposure in beach, marine, and snow scenes, and when recording distant views. As a general rule, reduce exposure about one stop less than normal.

HERE ARE FIVE COMMON PROBLEMS IN OUTDOOR COLOR EXPOSURE

1 OPEN SHADE By John P. Nuger

2 SIDE- AND BACKLIGHTING By Albert Gruen

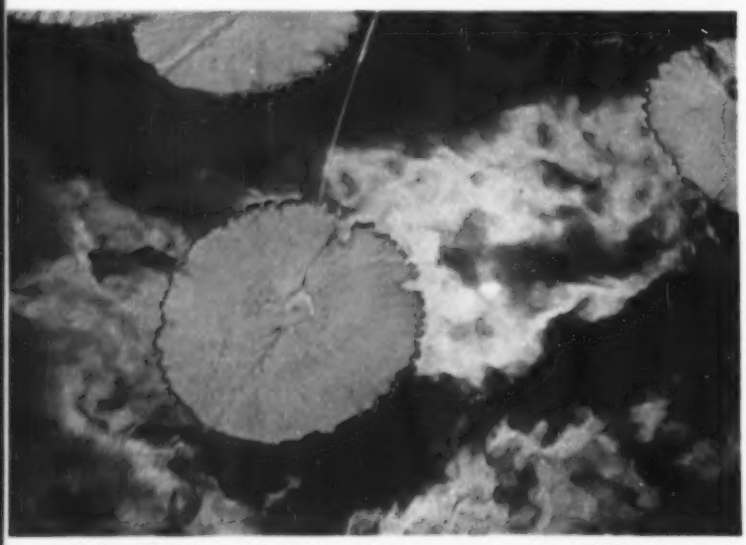


3 NIGHT SCENES By Arthur Busch

4 SUNSETS By Norman Rothschild

5 BRILLIANT SCENES By Bruce Downes

Caladium, red-and-green variety, exhibits brilliant color contrast typical of plants cultivated for their foliage. It is native to the tropics.



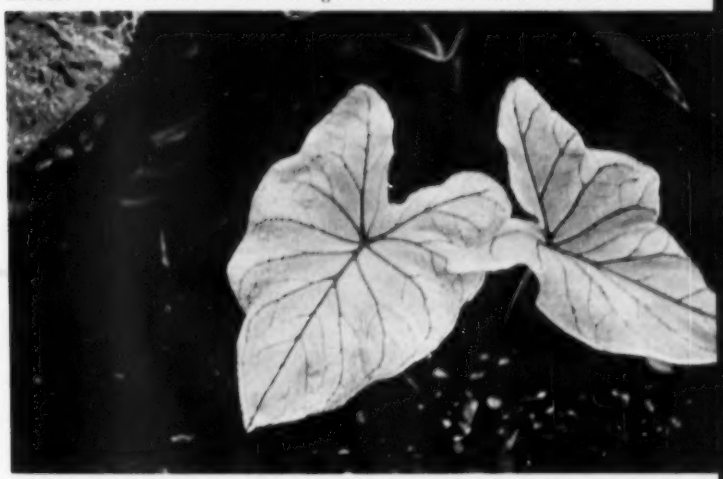
Water lily. Valastro waited until reflected sun was partly hidden by clouds.

Pictures

Architect S. C. Valastro finds

SOME GARDEN LOVERS prefer flowering plants; some like those that are cultivated only for the bright color and rich texture of their leaves. Photographers are much the same. It's hard to go wrong in taking pictures of delphiniums and rhododendrons and nasturtiums and phlox—they almost demand to be photographed. But S. C. Valastro, a New York architect, looks to the simpler and more striking forms of foliage plants for his pictures. On these pages is a selection from his big slide files of cultivated nonflowering plants.

Coleus: the camera moved close enough to eliminate all but area of solid color.

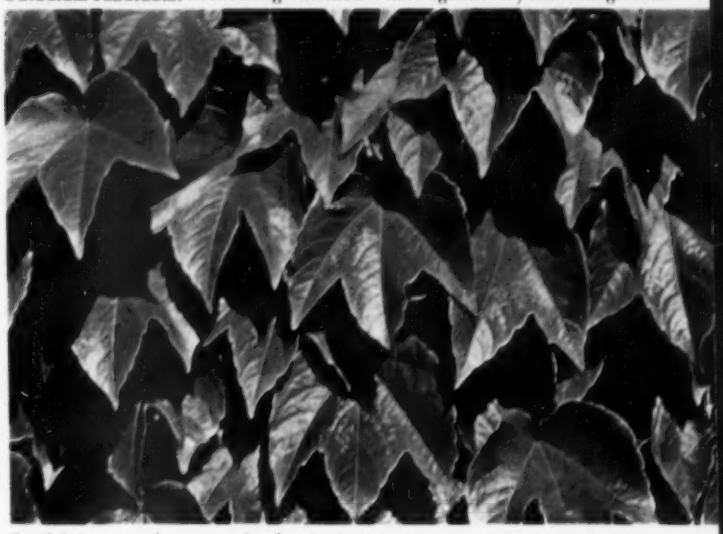


Caladium candidum: its shocking whiteness is stark against very dark background.

around you

design and color in familiar foliage

He made all the photographs in the Brooklyn Botanical Garden; actually all of the plants could have been found in any U. S. garden clubber's back yard, or in any public garden. Valastro uses the simplest of equipment: an old Contax II, whose uncoated lens he prefers for this kind of color work. He needs no close-up lenses, for he likes to preserve the natural eye-to-subject distance rather than to magnify detail. He doesn't use a tripod, since all exposures can be made by daylight at relatively fast shutter speeds.—▶



English ivy: another example of a single rich color played against dark shadows.

Water lily. Valastro waited until reflected sun was partly hidden by clouds.

NO FILL-IN

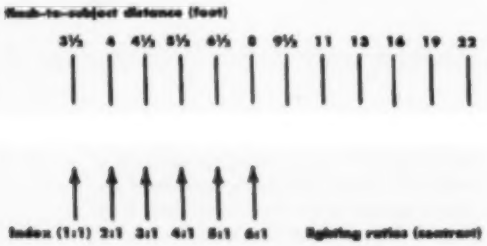
Photographs by Peter Gowland

1:1 FILL-IN

3:1 FILL-IN

FILL-IN FLASH LIGHTING RATIO CALCULATOR

Cut out both scales (or make cardboard copies); attach this one firmly to camera back



or flashgun case. Tape this one loosely (so it is movable) below distance scale.

ter speeds.—▶

English ivy: another example of a single rich color played against dark shadows.

At last! A simple method for using "synchro-sun" flash—

one of the best ways to soften harsh shadows in your outdoor portraits

fill-in flash for COLOR

By MILTON H. LOWE

←

Good and bad examples of fill-in flash technique are shown opposite (posed by model Stephanie Griffin). In the normal shot the brilliance of the sun cast such heavy shadows that many features are obscured. Top right, flash was used at a distance of 4 ft for a lighting ratio of 1:1—this looks unnatural since there are no shadows at all. Lower left, flash was moved back to a distance of 6 ft for a ratio of about 3:1. Result, good modeling of face without loss of detail.

how to use the calculator:

Take a normal meter reading of the subject in daylight; divide the indicated *f*-stop into the guide number for the flashlamp you're using—this gives you the flash-to-subject distance for equal (1:1) fill-in ratio. Next, set the "Index" arrow on the lower scale at this distance, then select the desired contrast ratio from the appropriate arrow and stand with the flash at the distance it indicates on the upper (distance) scale. To make the exposure, use the shutter speed and lens opening which you obtained from the original meter reading.

AS THE old saying goes, when summer comes can photographers be far behind?

Anyway—after a long winter and an uncertain spring there's nothing better than moving out into the warm summer sun to make photographs. At the beach or on top of a mountain—wherever the sun is bright and strong, photographers do their stuff these clear days.

But the brilliant sunlight can throw trouble your way and make your location portraits disappointing by creating heavy, deep shadows which hide detail and can make your friends look as though they had only half a face. This is especially true when you use color films, because their exposure latitude just isn't as wide as it is with black-and-white materials. A heavy shadow area may represent as much as eight times less light than the highlights of the same subject (this would be called a contrast ratio of 8:1). Now even a black-and-white film would be hard put to register such extremes as pleasingly as we might like it, but it is simply beyond the power of color film.

Fortunately, there is something you can do about it—without having to carry around an extra piece of bulky equipment like a reflector (which is quite limited anyway) (*Continued on page* 124)

6 ways to darken the sky

By PAMELA STEPHENS

Half a dozen remedies for baldness and missing clouds

ONE of the most glaring errors that crops up again and again in amateurs' prints is the lack of adequate tone in the sky area. This happens when a photographer fails to realize that the skylight is much stronger than that on the ground—exposing for subjects on *terra firma* actually overexposes the sky area tremendously. It becomes so dense on the negative that the whole sky prints a bald white, and clouds "disappear." What must be done is to find a way to darken the natural sky background without unduly affecting the quality of the main subjects. All six methods illustrated at right will do the job.

1. Most popular of all techniques, colored filters serve a variety of uses, according to the colors they absorb. The K (yellow) series are best for average work, but if skin tones are most important, the X-1 (light-green) is probably best; it must be used with pan films. The red A filters can cause some startling effects, but because of the high filter factor are most practicable only in bright light. Remember that if you under- or overexpose with a filter, the effect will be increased or decreased accordingly.

2. One of the advantages of using the polarizing (*Continued on page* 147)

1. COLORED FILTERS

When no filter is used, blue sky reproduces as light tone, gives insufficient contrast to subject.

2. POLARIZING FILTER

3. UNDEREXPOSURE

Exposing for a foreground in shadow often overexposes sky area so much that it goes completely blank.

5. INFRARED FILM

Ordinary scene (above) takes on a striking aspect when photographed on infrared film (right).

Medium-yellow filter (K2) absorbs blue in the sky light, making it go darker. Subject stands out more.

Green filter (X1) has effect similar to K2 but darkens reds. Note increasing subject isolation.

Red filter (A) makes sky go very dark but lightens skin tones, is better for architectural subjects.

Here subject appears "lost" without some sky tones or clouds in picture to give feeling of depth.

Polarizing filter (actually two filters rotated to give greatest effect) brings out clouds well.

Greatest effect in darkening sky is achieved with combination of the polarizing filter and yellow K2.

Underexposure of 1 to 2 stops can do the trick; latitude of film is enough to hold detail in shadows.

4. FLASH KEY LIGHT

Using flash at close distances can produce extremely dark skies. Above, normal exposure, no filter.

Exposure computed for flashlamp leaves sky (unaffected by flash) so underexposed it goes black.

This film must be used with deep-red filter over lens; notice how sky darkens, foliage goes white.

6. BURNING-IN

If sky weren't darkened during picture-taking, this can be done by "burning-in" during enlarging.

Moving card during printing (right) brings out dense cloud area of straight print (left) by giving it more exposure, keeps foreground from going too dark.

Outdoor

Backlighted sun lends enchantment to George Zimbel's pastoral scene made in Fredericksburg, Tex., with a Leica IIIf fitted with a

pictures

135-mm f/3.5 Nikkor lens. It was exposed at 1/1000 sec at f/8 on Tri-X film.

Courtesy See magazine

Camera-struck city kids were shot by June Duckworth with a 35-mm camera.

THERE IS NO MORE widely available light than the sun provides outdoors from one year's end to another, and there is no better time for pictures than summer when the sun is benevolently bright and infinitely varied.

In city streets and country lane, on beaches and in mountains, picture-taking opportunities abound. Whether you like pastoral scenes like George Zimbel's on this page, or running horses, or silhouettes against the sky, or pretty girls at poolside like those in this portfolio, or any other kind of picture under the sun, you'll find them somewhere outdoors.

For in summer, the world is your oyster. Walk in it with eyes open, watch the way the light falls, keep alert for the kind of enchantment the sun can bestow at unexpected moments. Keep your camera with you always ready for the precious passing instant when something may be revealed to you.

Outdoors under the sun there are pitfalls, too. Keep your eye on the shadows and watch the contrast. Black shadows cast by the direct rays of the sun can ruin a good picture. Strong sunlight can make a pretty girl squint unbecomingly. Overexposure spoils more good pictures than underexposure at the beach where the sun's intensity can be deceptive.

Study the outdoor pictures in this portfolio and the articles in this issue, for a fulfilling photo summer.

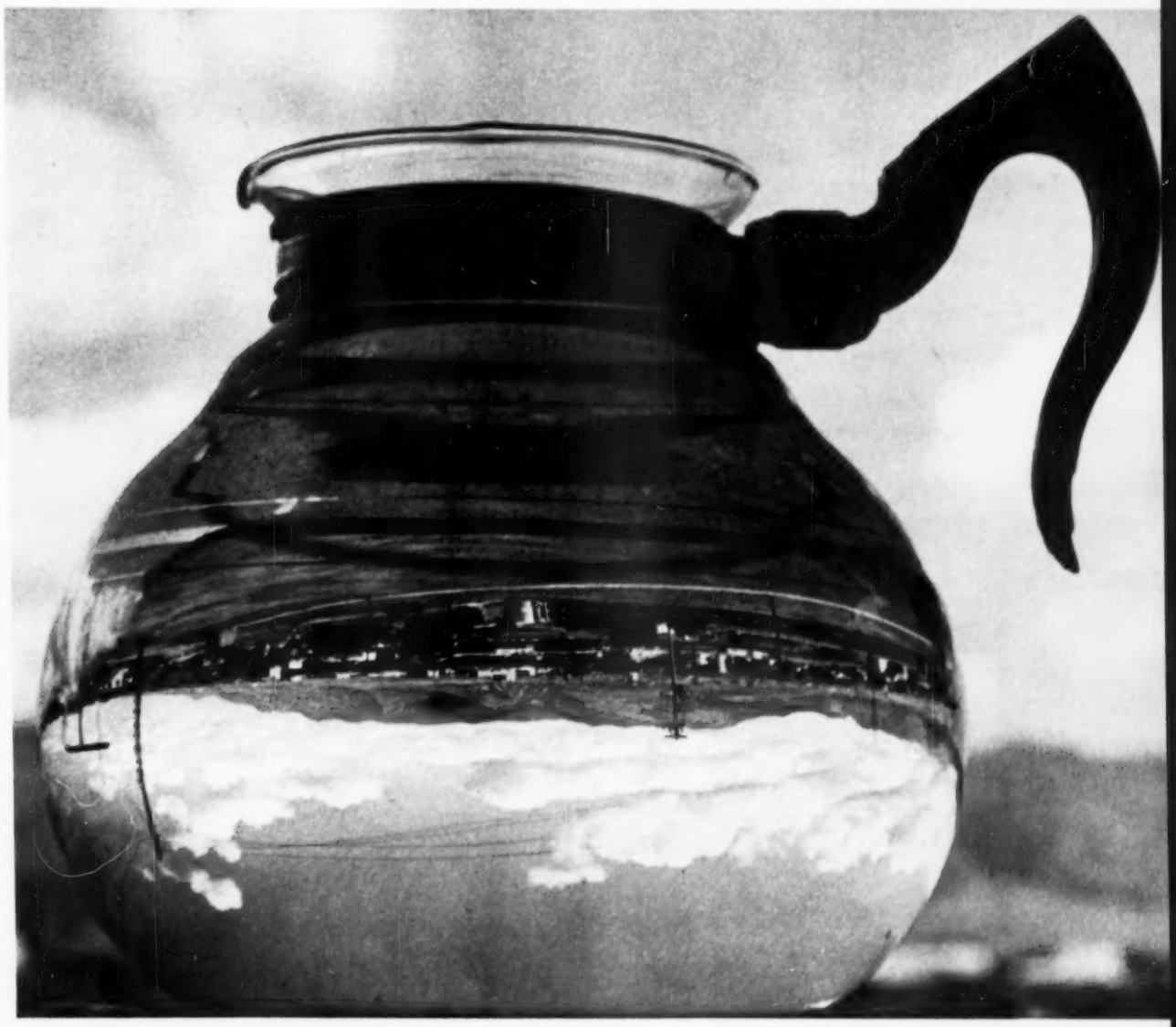
There's more than one way to interpret motion with your camera. Here are three

Outdoors, where the light is bright, you can do almost anything you wish with action. You can freeze it sharply with a fast shutter, or you can let it blur. Don Richards, of Topeka, Kansas, froze the bucking bronco (below) with the shutter on his Speed Graphic set at 1/500 and *f*/8. His picture won a prize in POPULAR PHOTOGRAPHY's picture contest. On the other hand, Charles Tasnádi, of Caracas, Venezuela, another prize winner, used the same shutter speed on his Rolleiflex, but panned his camera in the direction the horse was running while releasing the shutter. Result: horse and jockey (top right) are sharp but the background is blurred, which heightens the effect of speed. Al Francekevich, of Brooklyn, N. Y., deliberately selected a slow shutter (1/10) on his Rolleicord to blur the moving carousel and create an effect of fantasy.

For the unusual—try silhouettes and reflections

Outdoor pictures needn't be routine, as the four off-beat photographs on these pages prove. Sid Kaplan recorded bars and monkey silhouetted against the light, then cropped the print as a narrow vertical to make an interesting pattern, left. Right, Sheldon J. Weston shot through a wet pane for this low-angle view of a window washer at work. Below, the cyclops

eye of a silhouetted stop light dominates the foreground while pigeons flutter against the blank-sky background in Benn Mitchell's unusual street scene. Below, a glass coffee-maker turns the world upside down for Robert W. Breland, who photographed the inverted image with a 4x5 view camera. Shot required long bellows extension and *f*/45 aperture for sharpness.



Water, water, everywhere . . .

Whether it's the shadow-cool surface of a pond, a sunny swimming pool, or a chuckling brook, water makes the perfect prop for summer pictures. Nude, above, was photographed by Peter Basch, who used a slow shutter to blur the running water. Mitsuhiro Shinoda of Japan recorded the frog and lily pads, below. Tanned, happy face of swimmer, right, by Howard Israel, epitomizes summer fun.

Use that

Finder helps to keep horizon level

Nothing is more annoying in a picture than an off-level horizon line, and there is absolutely no excuse for it no matter what kind of camera you own. Your finder is a rectangle within which you "frame" your picture. It is your basic tool for composing your picture. It should be studied carefully before releasing the shutter. Make sure the horizon line is parallel with top or bottom of frame.

Keep vertical lines plumb with frame

Buildings, trees, etc., appear to be falling over if they are not parallel with the vertical edges of the finder. (Another type of illusion occurs when camera is tilted up as in shooting a tall building. Here parallel lines will seem to converge more sharply than they do to the eye.) Best solution is to angle camera so that vertical upright lines are as nearly parallel to finder edges as possible.

Look out for parallax when working close

Although your finder normally shows what your film will record, it won't do so when you move in close, because then the finder, generally located above the taking lens, "sees" higher than the taking lens. This is called parallax and it results in the tops of your subjects being cut off. To avoid cutting off the top of your subject's head, simply allow extra space at the top of your finder image.

finder!

Every camera has one, and it's there to help you make good pictures. Study its image before snapping the shutter to avoid errors like these

Finder used as guide to proper angle

In photography distortion is something to be wary of. You get it with short-focal-length lenses if you get too close, and although it is not so readily apparent in the finder image, you will detect it if you look carefully. Here the photographer, noting the model's over-emphasized legs, moved back and to the left to change his angle. Result: A pleasing shot of a girl perched on a railing.

Don't waste space, get closer to subject

The beginner's most common picture-taking fault is to stand much too far away from his subject, thus wasting valuable picture space. Unless you are taking a landscape or other vista-type picture it is usually best to fill the finder's framed rectangle with your subject. Move in close and get rid of unnecessary detail. If it's a pretty girl on a beach, who cares about sand, sky and water!

Watch backgrounds and avoid bad ones

Your finder is the place to look for faults before you click the shutter. A common one is cluttered backgrounds which usually can be eliminated by a shift of the camera's position. In the case of our model, the photographer lowered the camera using the sky as an undistracting backdrop for the pretty girl. With good eyes and an ordinary finder, there is no excuse for bad backgrounds.

How to make

Part II of a series. Here's how lighting and subject brightness influence

NEGATIVE contrast means the difference in density between various parts of the negative. Negative contrast and print quality go hand in hand. You need a negative with the proper contrast to produce a fine print with a minimum of darkroom manipulation.

The film and the chemical make-up of the developer influence negative contrast. General-purpose films and the developers recommended for them provide you with a degree of "automatic" contrast control. Carefully follow the manufacturer's time-and-temperature recommendations and the majority of your negatives will have contrast suitable for making good-quality prints. However, for more precise control you can alter the contrast within limits by changing the relationship between exposure and development. (See next spread for detailed directions).

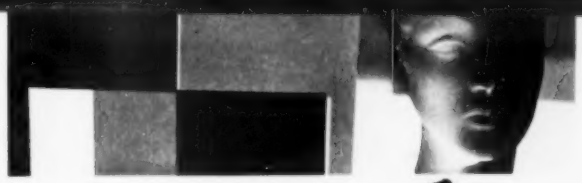
To understand negative contrast you must first understand the effect of two important factors—subject brightness and il-

flat lighting

contrasty lighting

The contrast of any negative is largely the result of two factors: lighting contrast and subject contrast. In the pair of photographs reproduced above, with accompanying negatives, the subject itself contains practically no differences in tonal brightness. When photographed by flat light the carved forms are almost indistinguishable, but when recorded by strong, direct sidelight, shadows are created, revealing form and increasing the contrast.

Normal-contrast negative is shown above. At right is a cross section of the negative.



High-contrast negative is shown above. At right is a cross section of the negative.

perfect negatives

contrast, and what you can do to control the results

By JOSEPH FOLDES

lumination. These two aspects of contrast are illustrated in the pairs of photographs and matching negatives reproduced below.

Subject brightness—the range of tonal values in the subject—obviously has a great influence on negative contrast. If the subject contains both black and white areas, for example, the resulting negative will have high contrast. On the other hand, if the subject is a uniform gray (or has colors which register as if they were all the same tone) the resulting negative will have low contrast.

Diffuse, shadowless lighting will not alter the subject contrast already existing in the scene. However, direct light from side or back throws strong shadows which greatly increase the total range of tonal values in a scene, thus providing considerable contrast even if the subject itself is uniform in tone. Actually, most picture-making situations involve both subject brightness and lighting contrast, and offer some opportunity for control.

flat lighting

contrasty lighting

If the subject itself contains a fairly wide range of tonal brightness the resulting negative will have a usable amount of contrast even if the lighting is extremely flat. Girl on beach, above, was recorded by diffuse, almost shadowless illumination, and most of the contrast is produced by tonal variations within the subject. Same scene recorded by direct, shadow-casting sunlight has greater contrast, although increase is not as dramatic as in other pair.

You can control contrast by changing exposure-development ratio

Sometimes, especially when shooting pictures indoors, you can control the lighting contrast and even subject contrast (by altering background, costume, etc.). However, if you aren't able to control these basic factors you still can adjust contrast within limits simply by changing the ratio of exposure to development. In general, to *decrease contrast* give more than normal exposure and develop for a shorter time. Of course, when you change the exposure-development ratio to increase or decrease contrast you should use the entire roll for the same type of subject under similar conditions of illumination. Every picture on the roll is necessarily developed for the same length of time; therefore you must give uniform exposures to achieve negatives of uniform density and contrast. With sheet film, of course, you can vary exposure for each shot, marking each holder to indicate the necessary change in development.

It's impossible to give exact directions on how much you should change exposure and developing time because each subject is different and every film and developer combination reacts somewhat differently. However, as a starting point try reducing exposure about one-half stop and increasing development about 25 percent to increase contrast; increase exposure about one-half stop and decrease development about 25 percent to decrease contrast. Experiment with your particular film and developer combination. You'll soon gain enough experience to control negative contrast efficiently.

Of course, it's best to stick to your standard exposure-development procedure except when circumstances definitely call for special treatment, such as when you want to snap up contrast on an overcast day or reduce it in brilliant sunlight.

There is no rule to tell you what is "proper" contrast. The only practical way to judge negative contrast is by the results you get in printing. If straight prints from your negatives consistently produce the degree of contrast you like, then all is well. But if they turn out consistently too flat or too contrasty, then you should adjust your standard procedure to correct this.

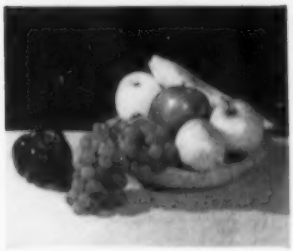
How to increase contrast

Portrait of boy, above, was made on an overcast day when the lighting was diffuse and low in contrast. The negative from which this print was made received normal exposure and developing. A second negative of the same subject under the same lighting was given about one stop less exposure and 50 percent more development. Resulting print has increased contrast, below. Increasing the immersion time affects the brighter areas more than the shadows.

How to decrease contrast

The ducks, above, were photographed on a bright sunny day, resulting in a negative of excessively high contrast. (Negative received normal exposure and development.) To reduce contrast a second shot was made at approximately one stop greater exposure and the negative was developed for about 50 percent *less* than normal. The increased exposure had relatively greater effect on the shadow areas than on the highlights, allowing the former to "catch up" somewhat with the latter.

You can also control contrast with filters



The relative tonal values of different objects can be altered by using a filter. Top, note slight contrast between fruit and background, which was blue. Above, yellow filter darkened background, thus greatly increasing contrast.

Control lighting contrast with fill-in illumination

The pair of photographs above demonstrates yet another way to control the contrast in your negatives. Sidelighting produced considerable contrast in the portrait at left. In the portrait at right the model is in the same position and the same sidelighting is used but excessive contrast is eliminated by placing another light near the camera to illuminate the shadows. Sources for fill-in include flash, flood, and reflectors, either natural or man-made. Fill-in illumination is useful for outdoor subjects as well as indoor ones.

The Kodak BULLETIN

Traveling Color &

—and the velvet-action cameras with the rolling focus . . . some interesting free extras in a modestly priced stereo camera . . . the stereo viewer that has a tripod socket . . . a short quiz to see if you're up to date on photographic chemicals . . . taking freckles off a pretty nose . . . and a summer hint for next Christmas

Vacation color

If you go touring on vacation—if you visit places you may not be able to revisit—then this tip is for you:

All the *equipment* you need to process the new miniature Kodak Ektachrome Films, *without a darkroom*, is (1) a Kodak Day-Load Tank, (2) an accurate thermometer, (3) a half-dozen pint-size bottles or fruit jars for solutions, (4) maybe a couple of film clips or thumb tacks, and (5) a No. 2 photoflood bulb.

This is pretty sensational, when you think of it. It takes you all the way from the exposed film to the finished full-color transparencies. It means you can finish a day's shooting, and within a couple of hours see exactly what you have. It means that if any shot went wrong, or if you need extra fill-in shots to complete the story you want, they can be shot the next morning before you leave. It means that practically any room with running water and electric wiring is a color lab. Run four inches of 75-degree water into a tub or sink, use it as a water bath to bring your processing solutions and tank to the right temperature, and you're in business.

The practical instructions for processing 35mm and 828 Kodak Ektachrome Film come with the $1.80 pint-size Process Kit E-2 (be sure it's E-2, not E-1) . . . and better put in your order for the $9.95 Day-Load Tank now.

Easy stereo

We've noticed that when people look at a stereo slide in a hand viewer, they don't just take a quick peek and say, "Pretty, isn't it?" They roll their eyes to look around corners. They start to put the viewer down and then discover something else in the picture. And they look a long, long time.

We had all this in mind when we put a tripod socket in the bottom of the Kodaslide Stereo Viewer, Model II. Mount the viewer on a tripod or a Kodak Flexiclamp, set it up in the right position by an easy chair, and let your guest go at it. Easiest stereo viewing ever. The light can be locked on. The viewer can't be nosed out of focus, because you adjust the focus by moving the slide carrier, not the lenses. And there's a rheostat to adjust the light in the viewer to match room illumination.

Dandy for artists, too. They can bring back a landscape in three dimensions on Kodachrome Film, attach their Kodaslide Stereo Viewer to a chair, paint to their heart's content with the country-

side as near as a quick look in the viewer. No cold hands or wind-blown smocks.

Your Kodak dealer can set you up for this deluxe stereo viewing with a Kodaslide Stereo Viewer, Model II, for $23.75 and a Kodak Flexiclamp for $5.95.

Roll, don't slide

One of our people has been looking into the origins and history of the ball bearing. He thinks the basic principle (conversion of sliding friction into rolling friction) was discovered when some prehistoric man lost his footing on a gravel creek bottom. The first really wide use of this velvet-smooth device came in the Nineteenth Century, when man began to use his own leg muscles to propel a bicycle built for two. Since then, the industrial significance of the polished metal ball has grown apace. Modern armies roll on ball bearings; and during World War II, some of the Allies' most earnest bombing efforts were directed at enemy ball-bearing plants. About the middle of the Twentieth Century it occurred to one of our camera designers, in a moment of high inspiration, that a ball bearing might help make the perfect lens mount for a camera.

He was right, of course.

Strictly speaking, a camera is a light-tight enclosure designed to hold a lens and film in accurate relationship, leave the lens free to move in an undeviating prescribed course under gentle pressure, yet not so free as to move all by itself. This simple-looking set of requirements has brought premature grey hair to many an engineer. The wide-circle mul-

Contest. No prize. Just the satisfaction of knowing you're up to date. Match the description with the chemical by putting the right number in each box.

1. An outstanding fine-grain developer.
2. A single-powder hardening fixer for films, plates, and papers that keeps well.
3. A material that tends to suppress fog and increase contrast.
4. A developer for warm-tone papers.
5. A rapid, long-lasting liquid fixer.
6. A paper developer you'll find in almost every darkroom.
7. A concentrated liquid stop bath that lets you know when it's exhausted.
8. Adds density to weak, flat negatives.
9. Makes prints of winter scenes look wintrier.
10. Makes prints of sunny scenes look sunnier.
11. A film developer which produces the maximum emulsion speed and shadow detail with normal contrast.
12. Reduces density and contrast in overexposed negatives.

- ☐ *Kodak Microdol Developer*
- ☐ *Kodak Developer D-76*
- ☐ *Kodak Dektol Developer*
- ☐ *Kodak Selectol Developer*
- ☐ *Kodak Indicator Stop Bath*
- ☐ *Kodak Acid Fixer*
- ☐ *Kodak Rapid Liquid Fixer with Hardener*
- ☐ *Kodak Anti-Fog No. 1*
- ☐ *Kodak Blue Toner*
- ☐ *Kodak Reducer and Stain Remover*
- ☐ *Kodak Chromium Intensifier*
- ☐ *Kodak Brown Toner*

Answers. The boxes should be numbered in the following order: 1, 11, 6, 4, 7, 2, 5, 3, 9, 12, 8, 10.

Guessing Games

tiple-ball-bearing lens mount (as used on our Kodak Chevron, Signet 35, and

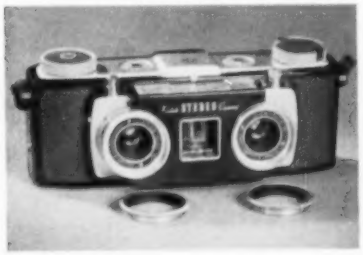
Bantam RF Cameras) is the nearest thing yet to a perfect solution.

The charming thing about a ball bearing is that you can adjust it perfectly snug, leaving no slack or play whatever, and still have it move smoothly and freely; you can lubricate it for summer, and it will move just as sweetly in deep winter; and for all its delicacy of adjustment, it's as rugged as a pipe fitting. In a lens mount, this adds up to precision alignment and happy operation all the year round.

Ask your Kodak dealer to let you try out the focusing of a $56.75 Bantam RF, a $75.00 Signet 35, or a $198.50 Chevron, and you'll *feel* what we mean.

No extra charge

Did we ever point out to you that the $84.50 Kodak Stereo Camera includes quite a bit of extra equipment at no extra charge? We don't mean the neck strap and lens cap—those are routine. But take a look at those deeply recessed

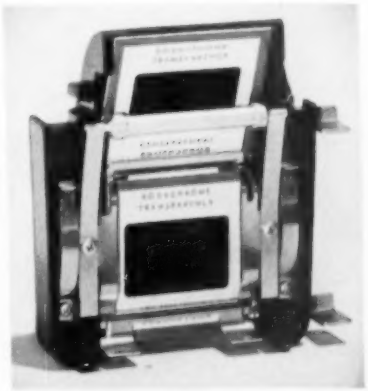


lenses. They were made that way so you wouldn't need to buy (or bother with) two lens hoods. Saving, about $3.60. And note the two retaining rings for your filters, style-matched to each lens. Bought separately, they'd cost an extra $2.40.

We don't know how to put a valuation on the spirit level in the viewfinder; but say it would cost you $3 to put one on a stereo camera that didn't have it. Total extras so far, about $9. Now, the exposure selector. It takes the place of anything from a 25-cent dial guide to a $30 exposure meter, but does things neither of them can do. Try this selector, then estimate the value. It's high.

We've already said that for practicality, convenience, quality, and all-around pleasure, the Kodak Stereo Camera is worth twice $84.50. Could be we were figuring too low.

Snap-action slide feed



This ingenious little mechanism is the snap-action slide feed from a Kodaslide Signet Projector. Don't try to figure it out (our photographer got so confused he pictured it upside-down). The important thing is that when you push a slide in, this little unit drops the previous slide down and centers the new one in position so rapidly your eye can hardly follow the change. The new picture simply arrives before you are aware anything is changing. This is something to see; go down to your Kodak dealer's and see it. You are likely to walk out with a Kodaslide Signet 500 ($72.50 and $79.50) or a Signet 300 ($59.50). Which is just what you should do, if you want to see your 2 x 2 color slides projected at their best.

Filter exploring

You probably have the basic filters for black-and-white photography. Do you get full value from them? Most filter owners don't.

For instance. Some day you may come face to face with the problem of picturing a beautiful piece of mahogany or redwood furniture. (Don't ask us when or why; but these things happen to people whose friends know they are serious photographers.) The proper filter will snap out the grain, make a better picture. Which filter? Your Kodak Wratten A, with a good pan film such as Kodak Tri-X.

Or maybe the problem is to copy a red-ink signature so it comes out black . . . heighten or subdue the contrasts in a green-and-orange plaid fabric . . . build up the contrast of a small boy's freckles . . . or suppress the freckles on

a pretty girl's nose. Your basic set of Wratten filters—the K2, G, A, X1, and maybe a few others—will help you manipulate the colors every which way, once you know how.

How do you find the answers? Easy. Study the 35-cent Kodak Data Book "Filters and Pola-Screens." *Then put its suggestions to the test, and see for yourself.* You'll be a filter expert in no time at all.

Next-Christmas hint

Mindful of the fugitive nature of time (and the fact that a lot of our friends arrive late at the post office every Christmas) we would like to make an out-of-season suggestion. Get a copy of the 35-cent Kodak booklet "Ideas for Photo Christmas Cards," and nail your next-Christmas card down on film *now*. It's a good solid insurance policy—even if you have a dozen additional ideas between now and next November 1.

Prices include Federal Tax and are subject to change without notice.

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Microphen

THE RECENT INTRODUCTION of Ilford Microphen, a remarkable new fine-grain developer designed for maximum usable film speed built around Ilford's patented developing agent Phenidone (*1-phenyl-3-pyrazolidone*) marks the second time within a space of four years that a British import has upset the prevailing speed-to-graininess ratio and rolled forward the frontiers of available-light photography.

In December 1951, POPULAR PHOTOGRAPHY's exclusive story *High Speed Plus Fine Grain* introduced the first of these amazing imports to the American photographic public—Promicrol, by May and Baker of Dagenham. For four years Promicrol has reigned supreme in its ability to produce a maximum of shadow detail with minimum fog level, graininess, and highlight density at the highest emulsion-speed ratings. For four years, this magazine has pitted the Dagenham product against every newcomer, and in every case Pro- (*Continued on page* 102)

Normal development of Tri-X roll-film negative (rated at 1,600) in Ilford Microphen produced optimum picture quality (left) despite substantial "underexposure."

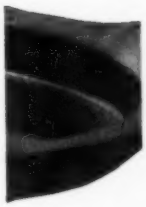
→

Extended development of the underexposed 35-mm Tri-X film negative in Microphen produces characteristic open shadows.

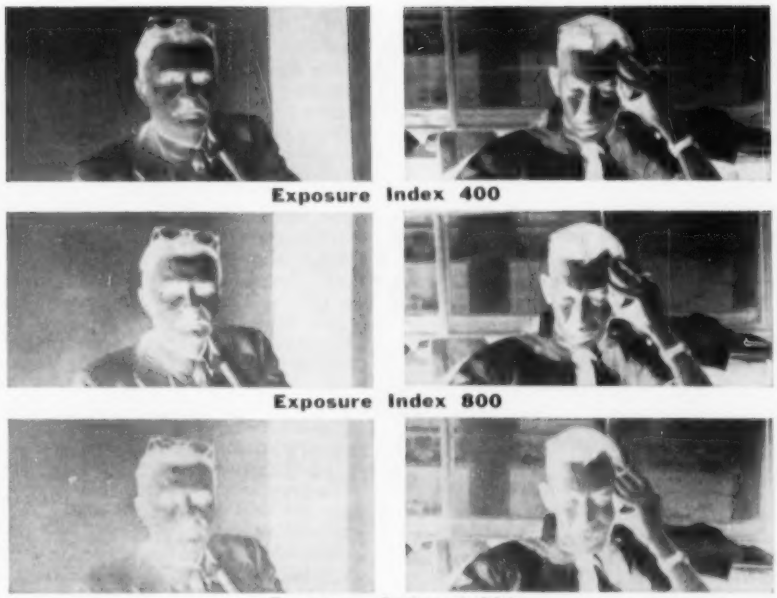
The **NEW** Gaso

microl has proven superior. Several

Ilford's HP 3 emulsion. Separate tests



Two series of exposures at right show how inherent exposure latitude of Tri-X film can be enhanced by normal development in Microphen. Both the flatlighted subject in the adjoining column and the contrasty one at the far right were exposed on basis of incident-light exposure meter ratings of 400, 800, and 1,600 (ASA equivalent) respectively. Both sets of three exposures were developed together for 12 minutes at 68 F in fresh Microphen solution. All six negatives produced prints of good quality when printed for the same time on No. 2 paper.



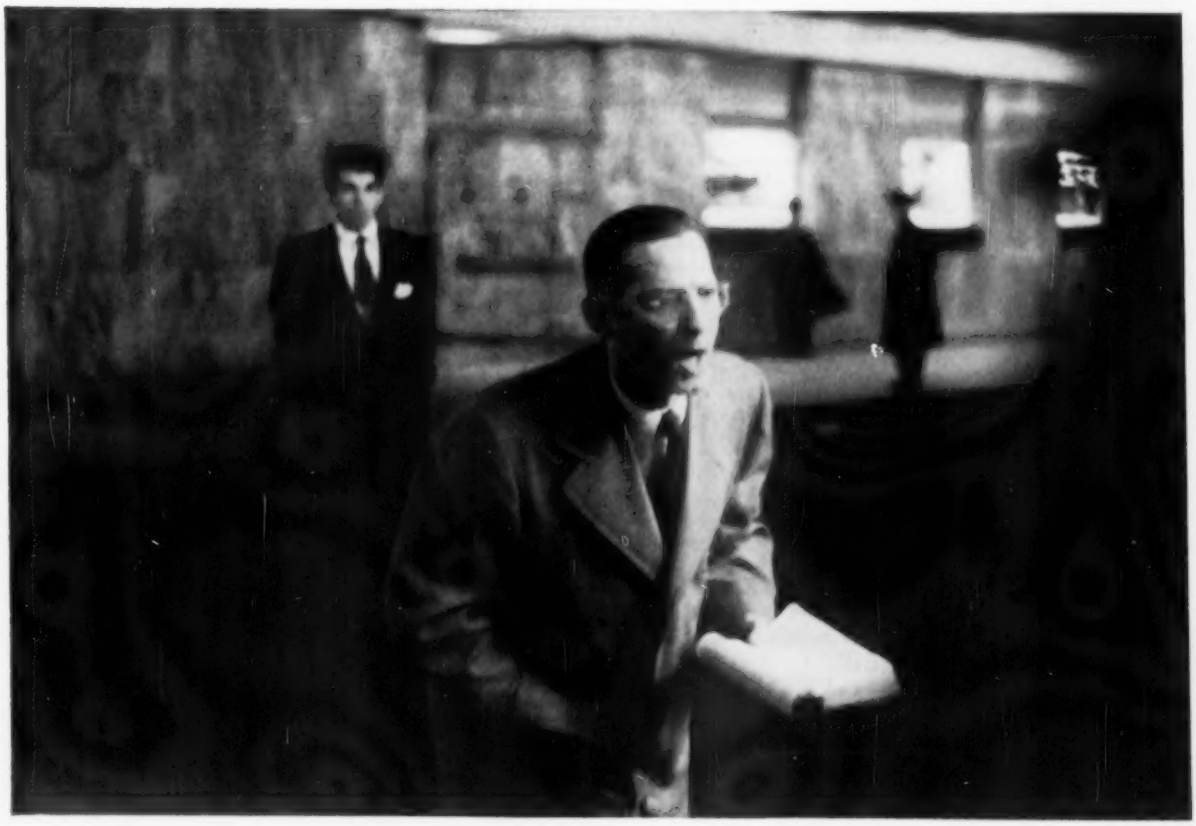
Exposure Index 400

Exposure Index 800

Exposure Index 1,600

A new high-energy fine-grain developer—the best yet

By BOB SCHWALBERG



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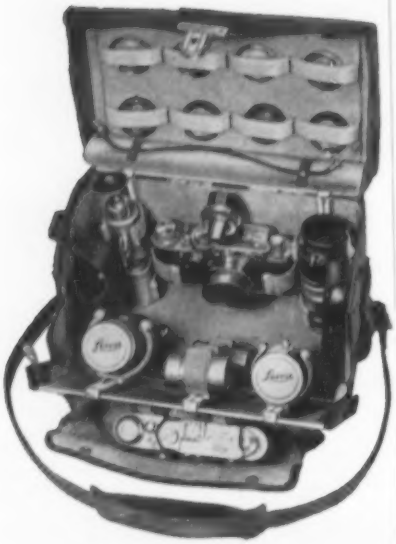

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microl has proven superior. Several months before this issue went to press, we began a series of exhaustive tests in which Promicrol and our reference developer, Kodak D-76, were matched against Ilford Microphen.

Here, in brief, are our initial findings: Microphen works best at the same advanced film-speed ratings as Promicrol, but offers three significant advantages. First: Microphen affords a greater degree of exposure and development latitude. Second: Microphen provides a good deal more "pushability," permitting more overdevelopment with less blocking-up in the denser highlight portions of the negative. Third: Microphen's keeping qualities and shelf life are exceptionally good.

Before getting into our practical experience with this developer it might be well to discuss Phenidone, the developing agent that makes it tick.

The great majority of developers in use since the turn of the century are combinations of hydroquinone (*para-dihydroxybenzene*) discovered by Abney in 1880 and metol (*methyl-para-aminophenolsulfate*) introduced by Hauff in 1891. Hydroquinone is normally slow-acting and very contrasty. Metol is fast-acting and gives soft gradation. Although fairly successful formulas have been built on both hydroquinone and metol separately, when combined, these agents yield developers having properties superior in many respects to those obtainable when they are used alone.

Phenidone has most of the metol properties plus a few characteristics all its own. Like metol it acts not only as a developing agent but also as a catalyst in activating hydroquinone. Phenidone's unique property is its tremendous efficiency in doing this job. Only 1/5 to 1/10 the weight of Phenidone is normally required to activate a given amount of hydroquinone as compared to the metol required. This high activating influence of Phenidone makes it possible for Phenidone-hydroquinone ("P.Q.") developers to operate at pH levels significantly lower than those of comparable metol-hydroquinone ("M.Q.") developers. (The pH of a developer is a practical measure of its alkalinity or acidity. The higher the pH, the more alkaline the developer, the more active the developer, the greater the degree of gelatin swelling and graininess, and the shorter the effective life of the solution, all other things remaining constant.) In addition, when the pH of a P.Q. developer is equal to that of the corresponding M.Q. formula, the developer containing Phenidone will yield a higher degree of contrast.

The other Phenidone advantages are its very low staining tendencies and toxicity—the fact that sufferers from skin rashes attributable to contact with metol apparently suffer no ill effects when exposed to Phenidone. The low Phenidone concentrations required call for less weight and bulk in the dry mix since less preservative is required to inhibit oxidation of the mixed solution.

Our testing of Microphen thus far has been limited to the three Eastman films, Plus-X, Super-XX, and Tri-X, as well as Ilford's HP-3 emulsion. Separate tests of these four emulsions were made in their 35-mm and 120 roll-film versions. A Rolleiflex camera equipped with a 35-mm back was used in several test series so that both the 35-mm and the roll emulsions received identical exposures from the same lens and shutter. As stated previously, Kodak D-76 and Promicrol were used for comparison in all tests.

Our object was to discover the minimum exposure (in terms of film-speed indexes) which would yield: (1) maximum shadow density and shadow contrast; (2) minimum blocking-up in the highlight areas; (3) lowest fog level; (4) finest grain. Quality evaluations were made on the basis of straight prints (no burning-in or holding-back) made on normal No. 2 enlarging papers with several representative enlargers. Test results quickly indicated that the contest was a personal affair between Promicrol and Microphen, with D-76 a poor third. Here's how it went with each of the films tested:

Kodak Plus-X, 35-mm: With a 12- to 14-minute immersion at 68 F with intermittent agitation Promicrol reaffirmed its ability to produce beautiful negatives when the meter was set at 320 in the ASA system, 250 Weston. With very contrasty lighting, the highlights were somewhat denser than we'd prefer, but never completely blocked. Very flat light was no problem and Promicrol's excellent shadow contrast proved equal to every task. Under the same conditions Microphen gave its best results at the same speed indexes—320 on the Norwood incident-light meter, 250 on the Weston. Purely coincidentally, the developing time that gave us optimum quality averaged 12 to 14 minutes in both cases. Where the subject contrast was high, Microphen did wonderfully well with a 12-minute immersion. These negatives were superior to the Promicrol negatives in that with shadow density and contrast about equal, the highlights were less chalky. In very flatly lighted situations, however, the 12- to 14-minute Microphen negatives lacked sufficient contrast and the developing time had to be extended one or two minutes to reach Promicrol quality. This additional immersion time does not measurably increase Microphen's graininess, and with 35-mm Plus-X both developers proved equally fine-grain. When Plus-X was given one additional stop underexposure at the effective film speed of ASA 650 (Weston 500), both developers produced poor but barely passable negatives with increased grain and contrast when the immersion times were stretched out considerably. Because the highlight densities and over-all negative contrast were lower in the Microphen negatives with all other qualities about equal, it must be granted that the Microphen results were "less bad" than Promicrol's. We say less bad advisedly because both formulas gave optimum quality at the 320 ASA (250 Weston) index.

Kodak Super-XX, 35-mm: Neither developer provided any worth-while speed increase with this film as compared to Plus-X, 35-mm. The chief defect was a loss of detail and contrast in dimly il-

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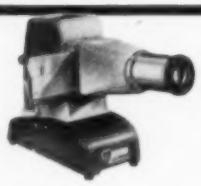

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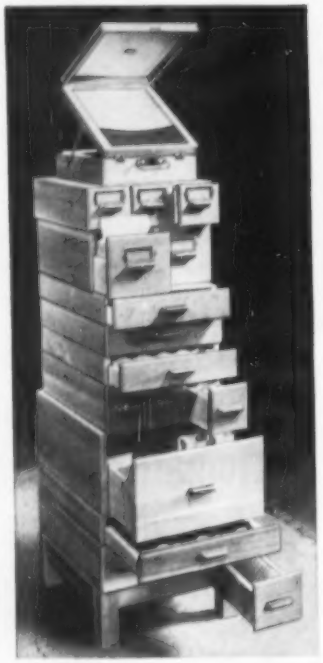

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luminated negative areas. Promicrol did better here than Microphen, and the lowering of over-all highlight contrast by the new Ilford developer could not be considered advantageous.

Kodak Tri-X, 35-mm: This film produced a photofinish at 800 ASA (650 Weston). With a 10-to-12 minute immersion in Promicrol and a 12-to-14-minute immersion in Microphen, both developers behaved like champions. In all cases where the contrast was very flat, Promicrol showed a very slight advantage, and when the contrast was higher, Microphen showed an equally slight advantage. Grain was visually equal when both developers' immersion times were adjusted to give equal contrast in the thin areas of the negative. When 35-mm Tri-X was given one stop less exposure at 1600 ASA (1300 Weston), Microphen followed the pattern of our Plus-X results in producing "less bad" negatives, but in this case it was superior in finer grain as well as slightly better highlight detail. In average dim light (where the Norwood meter indicates less than "12" with the slide out), between 14 and 18 minutes were required of Microphen for 1600 and upward. Where the light was fairly strong, of course, this rating was no trick at all to achieve. In general, Microphen must be watched carefully with 35-mm Tri-X whenever the lighting is excessively dim or excessively flat, or the resulting negatives may require a hard grade of paper. The visible fog level is higher with Microphen development, but when enlargements were made, this fog proved completely unimportant. With 35-mm Tri-X both Microphen and Promicrol proved very much grainier in cases of overexposure. In compensating for overexposure with drastically shortened immersion times on the order of 6 to 8 minutes Promicrol proved consistently superior.

It is our present opinion that with all of the films thus far tested, exposure for Microphen development must be sufficiently short to require at least 10 minutes in the developer and preferably 12 to 14. Otherwise contrast in the shadows will flatten out to the extent that a No. 3 or 4 enlarging paper may become necessary.

Ilford HP-3, 35-mm: This film performed best at ASA 400 (320 Weston). Immersions averaged 12 to 13 minutes in Promicrol, 12 to 14 in Microphen. Re-

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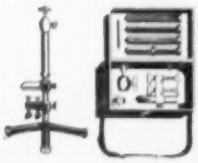

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sults in most respects closely paralleled our Tri-X experience. At higher effective film speeds, neither developer performed particularly well, although Microphen was again "less bad" than Promicrol when immersion times were really stretched out.

Kodak Plus-X, roll film: This contrasty film with its tendency for highlight blocking under short available-light exposures, when development is carried out for the benefits of the shadows, worked noticeably better when developed in Microphen. With a 10-minute immersion and an exposure index of 125 ASA (100 Weston), the Microphen negatives were more readily printable because of lower highlight densities. Where lighting contrast was low, Promicrol held its own, but in contrasty conditions all the votes have to go to Microphen in connection with this film. The exposure and development latitude of both developers was lowest with both of these films. Actually, Plus-X roll film is a very poor choice for available-light work and even these two gentlemanly formulas could not suppress a blocked highlight here and there at ratings higher than 160 ASA (125 Weston).

Kodak Super-XX, roll film: The best rating for this film in both developers proved to be our old standby of yesteryear, 200 ASA (160 Weston). Immersions in most cases ran to 14 minutes in both Microphen and Promicrol. Because the highlights were very close in both developers, our vote for the 200-ASA (160 Weston) rating goes to Promicrol. But at 400 ASA (320 Weston), with immersion times stretched an additional 3 to 4 minutes, Microphen's slightly more gentle action in the brightly lighted subject regions proved of great value. Graininess was absolutely equal.

Kodak Tri-X, roll film: Comparisons made between this film and its 35-mm counterpart exposed in the same camera with the same lens and shutter settings prove that roll-film Tri-X is slightly finer grained and noticeably more contrasty than its 35-mm counterpart. This increase in contrast is much more apparent in over-all highlight contrast than it is in interior shadow contrast, although this too is higher. ASA 800 (650 Weston) proved consistently to be the most reliable all-around film speed rating, with Promicrol developing times nearly always between 9 and 11 minutes, and 12-14 minutes usually doing the job with Microphen. This film produced the best negatives made in all of our tests.

Ilford HP-3, roll film: In rolls, HP-3 performed just about as it did in its 35-mm version. For a rating of 400 ASA (320 Weston), Microphen ran to between 12 and 14 minutes while Promicrol nearly always required one or two minutes less to attain equal shadow detail and contrast. The 10 minutes indicated by Ilford as the immersion time at 68 F for both 35-mm and roll-film HP-3 proved inadequate at ASA 400 (320 Weston) and excessive at 200 ASA (160 Weston).

In general, the following features of both developers were observed:

Latitude toward overexposure: This is a double-edged proposition. If you overexpose and do not compensate by cutting your developing time, Microphen is definitely less harmful. However, Promicrol can be used to compensate for overexposure by cutting immersion time to around 7 minutes. Under these circumstances it produces far more readily printable negatives than Microphen, which is too flat with any of the emulsions tested when immersion times are less than 10 minutes.

Latitude toward underexposures: Here the question is not exactly double-edged, but more an edge-and-a-half. If you underexpose and do not compensate by increasing your developing time, both developers will do just about equally poorly. However, if you do extend your immersion time Microphen will usually do better than Promicrol. Our experience with 35-mm Tri-X is a case in point. With 10-to-12 minutes in Promicrol and 12-to-14 in Microphen both developers are just about equal in grain and contrast. But after 14 minutes in Promicrol, grain commences to build up rapidly. Microphen on the other hand can keep right on going almost to 20 minutes with grain almost equal to Promicrol's 15-minute Tri-X grain. With other films, Microphen's advantage in pushability becomes less of a grain advantage and more of a non-highlight-blocking advantage.

Grain type: Up to this point we've been talking about the relative graininess of

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Microphen and Promicrol in terms of the degree of salt-and-pepper effect apparent in middle-tone values. As we've indicated, this effect is about equal when both developers are used to the same purpose with the same film. There is, however, another facet of this grain problem which should not be overlooked, and this is the *type* of grain produced.

Promicrol grain is of the sharply defined sort that sometimes causes photographers to remark that they "focused on the grain" in making enlargements. Although considerably finer than D-76 grain, Promicrol grain is of the same general structure. Microphen's grain, on the other hand, closely resembles that of D-23 in that it is slightly mottled and indistinct. If you examine a grainy area in a Promicrol negative with a strong glass you will see a series of individual grains quite close together. Similar examination of a grainy Microphen negative reveals an irregular pattern in which the light and dark blotches seem to be fused together. It is our assumption on the basis of these facts that Microphen contains some silver-halide solvent which attacks and dissolves the periphery of developing grain clumps.

From a maximum image-quality point of view, it is undeniable that developers possessing solvent action cause some loss of detail resolution. For this reason we would not recommend the use of Microphen with maximum-resolution thin films like Adox KB-14 or KB-17. However, for fast, moderately grainy films the loss of resolution is less actual than theoretical. And, in as much as Microphen's resolution is at least as high as that of the long-time favorite, D-23, this should not be a problem.

Keeping properties: Over the past four years Promicrol has earned widespread respect despite its very poor keeping properties. Although stainless-steel tanks may be used with it, the developer must be immediately filtered back into well-stoppered bottles with no air bubbles at all if Promicrol is to have any shelf life worth talking about. This, in addition to high cost, has been the major reason why many large labs have not switched over to Promicrol, although the labs of certain major publications as well as several custom photofinishers catering to professionals have relied on small-scale use of Promicrol for maximum emulsion speed consistent with professional quality.

The keeping properties of Microphen, on the other hand, must be rated as *unusually good*. One sample of this Phenidone formula which we kept for two weeks in a half-full stainless-steel tank showed only slight loss of speed and contrast over this period. Another sample kept in a bottle which was tightly stoppered but filled up to about two inches short of the neck showed no appreciable loss of either speed or contrast in the same period. A replenisher is available for use with Microphen and we will report on it as soon as samples are made available to us for testing.

Microphen is available in dry two-powder form to make 600 cc (21 oz), 2.5 litres (88 oz), and larger sizes. The powders mix very readily in water brought to 100 F, producing a slightly grayish mixture. The 600-cc (21-oz) unit is capable of handling 4 or 5 rolls of 35-mm or 120 roll film. Our immersion times have been based upon the simultaneous development of two to three rolls in fresh solution. When used for the second time, a 10 percent increase in immersion time is needed to compensate for the loss of energy. Processing is recommended to be standardized at 68 F with intermittent agitation. Our practice is to agitate vigorously upon going into the developer and then to give the tank two or three shakes every minute for flat subjects, and every other minute for negatives exposed under more contrasty lighting.

Microphen is being distributed to retail stores in the United States by Ilford's official agency, Alco Photo Supply, 902 Broadway, New York City. The developer is priced tentatively at 95 cents for the 21-oz quantity; $2.60 for the 88-oz quantity, and $10.50 for the 3-gallon size. Replenisher is supplied in an 88-oz unit for $3.25.

In combining Phenidone with hydroquinone to form Microphen, Ilford has produced a very soft-working fine-grain formula with the developer activity usually associated with far more caustic (highly alkaline) formulas. In normal use, its speed-to-graininess ratio is comparable only to that of the generally acknowledged leader in the available-light developer field—Promicrol. With forced development, this speed-to-graininess ratio appears superior to that of any other widely distributed formula, and even here, contrast is kept well within tolerable limits. Its latitude toward exposure and processing variations is excellent except in the case of underdeveloping to save overexposed negatives. Its cost is slightly lower than that of Promicrol, and, finally, its keeping properties are exceptional. These features make it almost a certainty that Microphen will become one of the most relied-upon developers for available-light photography both in small-scale amateur and professional darkroom practice as well as in many of the larger custom photo-finishing establishments.

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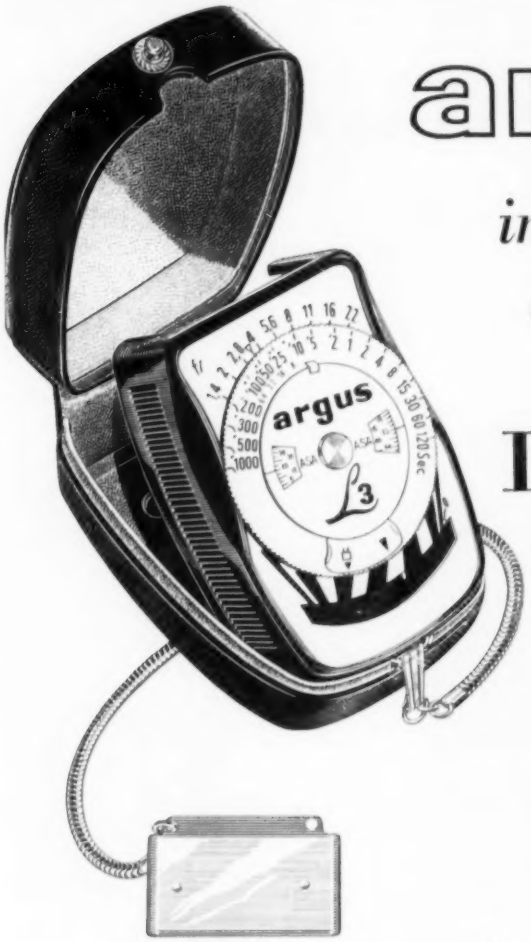

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By NORMAN C. LIPTON

Atlantic City trade show

- Better and faster films—color, B&W, Polaroid
- Lower cost stereo—the boom continues
- 35-mm—Corbina camera system
- Electronic flash—new developments
- Home movies—more versatile equipment
- Precision enlargers—new Durst line

When POPULAR PHOTOGRAPHY's reportorial team left the Atlantic City Convention Hall on April 1st after examining some 180-odd equipment exhibits for 5 long days, it was apparent to all that there were more than half-a-dozen trends in evidence (see list above) that would be of vital interest to the consumer public at large. Business-wise, the photographic industry seemed to be in excellent shape with a wealth of soundly designed new products offered and brisk trade being conducted between exhibitors and the large dealer group in attendance. Perhaps the most acute observation of the state of expansion was made by Kodak vice president James E. McGhee: "Since 1947, the photographic industry has been growing about two thirds faster than spending power."

What about product trends?

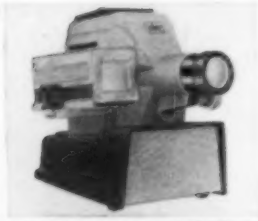
NEW FILMS

There was a moderate-to-heavy influx of new faster, better, more versatile films—black-and-white, color, and even Polaroid. Kodak's fast 35-mm E-2 Ektachrome (PP, May 1955, page 68) was joined by the new Anscochrome film (which replaces Ansco Color). Rated at 32 (ASA equivalent) like E-2 Ektachrome, Anscochrome is available in a variety of roll-film sizes as well as 35-mm, and it has the same capacity for being pushed beyond 100 by controlled processing manipulations (PP, June 1955, page 47.) A novel feature is the packaging of the 35-mm type in an 8-exposure daylight bulk-film loader. Two new competitors for Kodak Tri-X high-speed roll film turned up at the Trade Show—Gevapan Press (which will also be available later in 35-mm, 4x5, and 5x7 sheets as well) and Ilford HP-3 "improved emulsion"—both rated at 200 daylight and 160 tungsten. A roll-film version of Ilford HPS (the world's fastest sheet film) rated at 400 daylight and 320 tungsten was previewed by Ben Hoppin of Alco Photo Supply, exclusive U.S. distributor for the manufacturer.

E. Leitz, Inc., announced the availability of Adox thin-emulsion high-resolution films in roll-film form at 60 cents per No. 120 roll—R-14, R-17, and R-21, corresponding to the 35-mm KB-14, KB-17, and KB-21 emulsions (PP, May 1955, page 58). Polaroid introduced their Polapan 200 and 400 materials (PP, May 1955, page 64) for use with their two larger cameras, priced respectively at $1.98 and $2.19 per 8-exposure roll. Aside from their panchromatic response and increased emulsion speed, a major advantage over the older-type Polaroid ortho material is their broad exposure latitude, which varies between plus-or-minus 1 and 2 stops, depending upon subject contrast. The ortho material usually has to be exposed within ½ stop of the correct lens and shutter setting to produce acceptable results.

STEREO TRENDS

Although 3-D has dropped dead on the neighborhood movie screen, the stereophotography boom seems very much alive in the wake of new lower-priced equipment. A highly competitive merchandising campaign is afoot. Realist Inc. has made a determined bid to regain its leadership in stereo camera manufacture with the introduction of the Realist "45" at $88.50. This attractively styled streamlined version of the pioneer Stereo Realist camera, which touched off the postwar 3-D boom, lacks mainly the coupled focusing rangefinder of the original camera. It (*Continued on next page*)

1 

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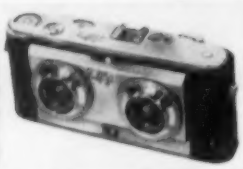
3 

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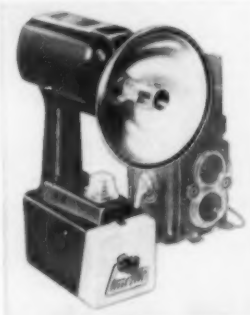
5 

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1 Skan "300" Slide Projector
2 Stereo-Graphic Outfit
3 Realist "45" Camera
4 Corbina with Spring Motor Attachment
5 Limelite "60" Electronic Flash
6 Bino-Foto Outfit
7 Durst Micromat 35-mm Enlarger

has many original features in its own right: fixed 35-mm, f/3.5 lenses, focusing achieved by movement of the film plane; concealed rewind control; rapid lever-type film advance, and X-synchronized shutter with a speed range from 1/25 to 1/200 second. Part and parcel of this competition in the under-$100 stereo-camera market was the preview by Graflex Inc. of their new $79.50 Stereo-Graphic camera—having an ingenious fixed-focus lens system providing universal focus from 4 feet to infinity. It has a single shutter speed of 1/50, and a simplified stop system calibrated from f/4 through f/11 supplemented with descriptive light conditions for daylight Kodachrome photography—brilliant, clear, hazy, and dull. It's due on the market late this summer along with a $12.95 viewer with built-in light sources ($8.95 for a stripped model used with existing room light).

A new economy-model stereo camera announced at the show was the Steré-All offered by the Universal Camera Corp., a product of their North Adams, Mass., manufacturing facility. Priced at $49.95, without case, it provides a fixed 1/50-second shutter speed, fixed-focus f/3.5 lenses, and X synchronization with an auxiliary $8 flash attachment. . . A record high in stereo equipment value at the show was the Arcadia Stereo Viewer, shown by Service Photo Supply—a battery-powered unit with focusing and interocular adjustments, for only $5.95. . . And as important as any straw in the wind on future stereo expectations was the announcement by Pavelle Color Inc., New York, of a new stereo slide-mounting service—15 cents a pair; $1.20 per 16-exposure stereo roll. They also introduced a new stereo colorprint service—2¼x2½-inch pairs at 79 cents a pair with a pair of plastic prismatic stereo viewing spectacles and frame, nominally priced.

VERSATILE 35-MM CAMERAS

By far the most interesting camera introduced at the Show was the 35-mm Corbina single-lens reflex, a product of Kamerawerke, Dresden, which will be distributed here by Alfa Photo Corp. of New York and Hanimex, Inc., San Francisco (for the 11 Western states). One of the most newsworthy features of this rugged model is its built-in optical viewfinder which enables the user to follow and observe the subject through the instant of exposure, thereby by-passing the momentary blackout that occurs when the reflex viewing screen is used. Additionally, the camera can be fitted with (1) a spring-motor attachment permitting 15 successive exposures to be made by merely pressing the shutter release, (2) an electrical attachment with a-c or battery connectors for automatic operation of a full 36-exposure film load, and (3) an interchangeable 60-foot film cassette providing 480 exposures without reloading —the first such facility since the 250-exposure Leica was discontinued. The price of the camera will be approximately that of the Exakta with equivalent optical equipment; accessory prices will be announced later on. . . Currently available and similar in function to the Corbina with the electrical attachment is the Ro-

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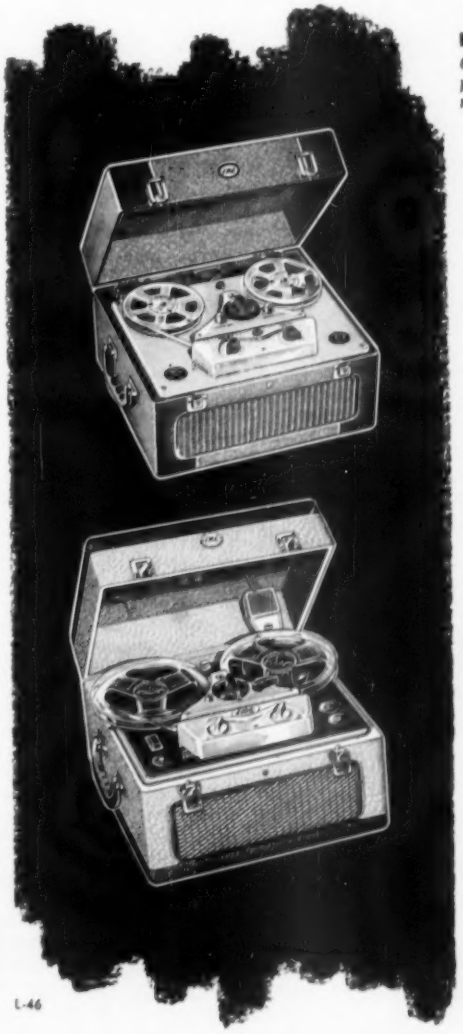

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828 Kodachrome	5.55	4.75
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620 or 120 TRI-X	1.50	1.20
35 mm Ektachrome, 20 exp	5.55	4.70
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828 Ektachrome	3.00	2.50

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bot Installation Camera announced by the Intercontinental Marketing Co. Priced at about $350, this unit consists of a stripped-down Robot Recorder camera with 40-mm Xenon f/1.9 lens to which a Kuli electromagnetic release attachment is secured, the latter being powered either by a 12- or 24-volt battery supply. The negative frame size is 1x1 inch, compared to the 1x1½-inch dimensions of the Corbina negative. A 33-foot film magazine permitting 400 exposures with the Robot Royal camera as well as with the Kuli combination will be available later in the year.

Much in evidence throughout the show were cameras providing interchangeable-lens facility with flash-synchronized behind-the-lens leaf-type shutters: Diax IIa (Karl Heitz, Inc.) a new model; the new DeJur D1 (described below), the Lordomat formerly imported from Western Germany by Montgomery Ward and now vigorously merchandised by Royal Photo Distributors, New York; and the camera that began this trend several years ago, the Voigtlander Prominent, a Willoughbys import. Prices range from very low indeed (under $50) to $100 and up. Another newcomer was Kodak's Retina IIc with fixed rear element and interchangeable front elements for wide-angle, normal, and tele use. This is a simplified f/2.8 version of the Retina IIIc (PP April 1955, Page 58) with built-in exposure meter and at a correspondingly lower price, $135.

"LVS" SHUTTERS AND METERS

The Synchro-Compur LVS shutter with cross-coupled and interlocked shutter speed and f-aperture scales and Compur light-value scale is apparently here to stay. According to Horst Franke, head of Franke & Heidecke, who make the Rollei camera line, F. Deckel is planning to switch its entire Compur-shutter production to this simplified format. Prior to the MPDFA convention, only the Bewi Automat (Willoughbys) and Gossen Sixtomat x3 (Photoptic Import Corp.) exposure meters had been calibrated in LVS numbers as well as conventional f-stop and shutter-speed scales. At the Show, Service Photo Supply unveiled the Sekonic Leader, a $6.95 meter of great sensitivity which also features LVS calibrations. . . Direct-reading exposure meters were also much in evidence—the recently announced Brockway M3 at $16.95 with 10 insert slides for as many different film-speed and shutter-speed combinations, flanked by the Skan Quick (now available with 5 direct-reading conversion insert plates for 10 film-speed ratings) as well as the previously available Weston DR and G-E Mascot PR-30—the latter also available in modified form for use with Polaroid cameras. . . The most novel exposure meter introduced at the Show was the Gossen Underwater Light Meter exhibited by Kling Photo—a $65 instrument sealed in plastic which permits readings to be made at sub-surface depths as great as 200 feet.

ELECTRONIC FLASH PROGRESS

Perhaps, the most exciting aspect of the Trade Show was the continuing expansion and spirited competition in the electronic-flash field. To begin with, there is now a definite trend toward lightweight dry-battery units serving the needs of the occasional user. These units compete with expendable photoflash, the speed of the flash being more or less incidental to economy and convenience. FR's new smartly packaged $54.95 unit—powered by four D-size photoflash cells—set a style trend. The Heiland Strobonar VII at $79.95 affords the same type of inexpensive power supply (80 cents for a set of four D cells—up to 300 flashes claimed) but with the additional feature of powerpack interchangeability: for the flash head may be used with two other Heiland power units. These are a 510-volt Pro Pak ($55.95, plus $15.95 for the dry battery) and an a-c plug-in pack, at $69.50. Also in this group is Hershey's new Sun-Lite 500 Portable Speedflash—a 36-ounce outfit with a special 200-volt circuit priced at $49.50 (less battery) with all the elements contained in the lamp holder. A single battery is claimed to give 500 flashes, lasting "a year or more."

General Electric has taken a slightly different approach to the problem of the occasional user of electronic flash who wants minimum powerpack weight and bulk without being obliged to change batteries more than once a year or so. At the Show, GE demonstrated preproduction samples of a new flashtube designed for operation from compact 240-volt batteries without need for vibrator or transformer equipment. A unit incorporating this small thin U-tube which has a maximum loading of 75 watt-seconds could be powered by an Eveready #491 battery which weighs but 13 ounces, measures $2\frac{19}{32}$x$1\frac{15}{16}$x$4\frac{7}{16}$ inches, and costs only $7.95. Stand-by time with the switch on would not be an important part of the battery's useful life.

The uniquely designed Limelite "60," a dry-battery-powered electronic flash unit which combines all the powerpack elements in a 4-pound lamp-head holder mounted beside the camera, created a great deal of interest at the show. Priced at $99.50, it incorporates among other features, a small red filter in the center of the reflector shield which is intended to correct the color quality of the emitted light to match the balance of daylight-type color films. Also of interest among dry-battery speedlight innovations at the show were the new Mighy Light Photo Cell slave units offered by Speedlight Center, New York City. These outfits, which come with a-c, dry-battery or combined battery and a-c powerpacks at $69.95, $84.95, and $119.95, respectively, may be used as a basic electronic flash unit or as an auxiliary slave light with any make unit.

NEW-TYPE STORAGE BATTERIES

The trend away from storage-battery-powered speedlight outfits, which we noted in our coverage of the 1954 MPDFA Show last July, has come to an abrupt halt. During the past year several foreign units of this wet-cell type have taken on here, and the Atlantic City show saw the debut of the Nems Clarke (Silver Springs, Md.) Megalume 2, a $275 wet-cell and a-c unit with a 10-pound 4-ounce pack pro-

(*Continued on page 120*)

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100mm F4 Telephoto Lens	29.95	19.95
135mm F3.5 Travegon Telephoto Lens	49.50	29.50

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8x30 C.F.*	7.5°	17.7 oz.	39.75
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15x60 C.F.*	4.0°	47.6 oz.	64.75
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* Note: CF—Central Focus. I.F.—Individual Focus.

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movie section

By JOE COUDERT
Photographs by the author

Underwater

An expert describes the techniques to use in making films

Photographs made at Silver Springs, Florida

Motion-picture camera inside Terry Blimp unit is aimed by guessing because finder cannot be used. Release is pressed through cover.

SWIM quietly out over the placid water of an abandoned rock quarry or some silent, secluded section of the sea—and then dip down. The instant your head sinks beneath the surface of the water you have cut your ties with one world, an old and familiar one, and plunged into a new one. This new world is a strange region, silent, eerie in coloring, teeming with a form of life you have never seen before. There are no paths to follow here, no guide books to help you along the way, and no one to ask questions. It lies there, a challenge to you alone, daring you to discover the mysteries it holds.

This is the fascination of the underwater world, a world that continues to attract more and more thousands of people to it every year. I made my personal discovery of it five years ago and each year the urge to go farther and deeper into it grows stronger. And so does the urge to make a record of what I have found.

At first I was content to tell people about the things I saw but when that proved inadequate I began taking still shots and finally have settled on the motion-picture camera as the ideal way to record for myself and pass on to others some of the mysteries and the excitement I have discovered in the underwater world.

It wasn't easy at first. For one thing, I ruined some valuable equipment, I wasted thousands of feet of film, and I got a lot of footage that primarily served to put my friends to sleep. For another

movie camera

of a new, different world with simple, low-cost equipment

Films of swimmers, fish, and reptiles can be made at depths of about 8 feet with the simplest motion-picture cameras and swim equipment.

thing, I nearly drowned myself twice. I have learned many tricks along the way, and I hope you will be able to use some of them.

The first thing I learned is that not everyone is cut out for underwater work. Like mountain climbing, some people just don't have the natural mental or physical aptitude for it. Before investing a penny in camera equipment the first thing is to find out if you are really going to enjoy, and finally, feel at home in the water. This can be done quite

Terry Blimp housing (left) consists of rubber bag with "window" in it and two rubber strips which are used in tying up unit. After camera is inserted (right) the Blimp fills out taking the shape of the camera. Turn page for how to pack camera.

cheaply with a minimum of equipment.

I advise buying a face plate which covers the eyes and nose and assures good vision. *Plain goggles aren't enough.* Along with the face plate, get a snorkel (a thin tube you can breathe through while floating along the surface and examining the bottom) and the flippers that will make swimming enormously easier. This basic outfit can be purchased in any sporting-goods store for an outlay of about $15. Before you even think of taking a picture the trick is to learn to live in the water. My advice is to try and find someone who already is a skilled skin diver or spear-fishing expert who can show you the best and safest way to be at home down under. If, after a week or two, the fear of depths and the unknown seems to be replaced by an urge to keep on exploring, then it's time to start thinking about your camera.

Obviously, the first trick in underwater work is to keep your equipment dry. This can cost really big money, with underwater housings starting at about $100 and spiraling rapidly up to the $10,000 class. There is, however, one device on the market that will spare you this expense until you are sure you have the skills and instincts to warrant spending real money. It is called a Terry Blimp and sells for $7.95. The Blimp is a crude but basically effective housing that is fashioned of innertube-like rubber with a round piece of plate glass at one end and an opening at the other. Your camera is inserted through the opening, which is then sealed off with several heavy rubber bands. The shutter is operated by pressing the release through the rubber. It will pay you dividends to practice above water until you are certain you have the hang of it. It also is wise to insert at first something other than your camera and see if the Terry has by any chance sprung a leak. One other word of caution: Don't take your Blimp down below ten feet, as pressure can cause it to rupture. Ten feet is far enough down to face most underwater problems you ever will encounter; greater depths merely exaggerate them.

This brings up the problem of what camera to put in your Terry Blimp. While almost any camera *can* be used underwater, I have found a certain few features that are almost a must if footage is to be presentable.

Underwater, light is always going to be somewhat less than perfect. This means that a fast lens (I would suggest an *f*/2 and preferably faster) is highly necessary. I also have found that a wide-angle lens is very desirable because the greater depth of field eliminates the need for critical focusing which, when underwater, can prove to be a real problem.

While an 8-mm can be used, a 16-mm is strongly advised. Underwater footage is often fairly (*Continued on page* 118)

Underwater swimming outfit consists of flippers, mask with face plate, and a snorkel tube which allows swimmer to get air.

Moisten inside of face mask before putting it on so that plate will not fog underwater.

A

B

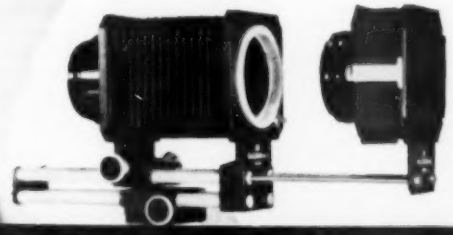
C

A Magazine-type camera, Bell & Howell 200 Auto Load, is placed in Blimp.

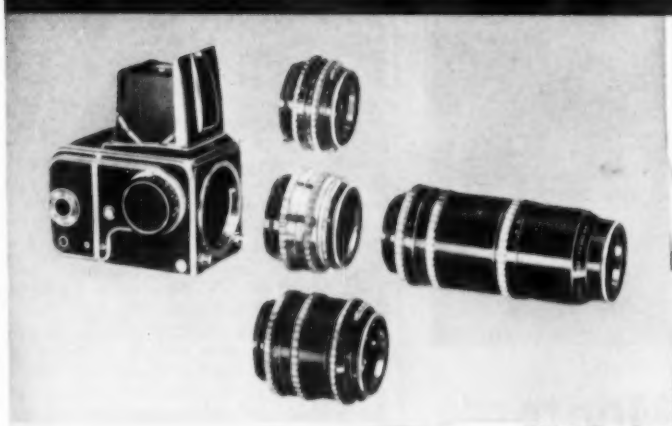
B After folding end piece over, rubber straps are used to make unit watertight.

C Before going underwater, unit is tested for leaks. Bubbles indicated leak.

EXPERIENCE LEADS TO BELL & HOWELL



The soloist that performs like an orchestra



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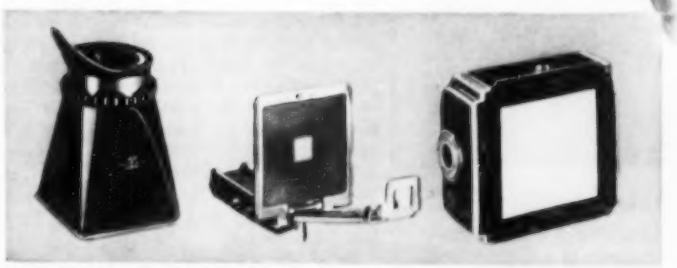

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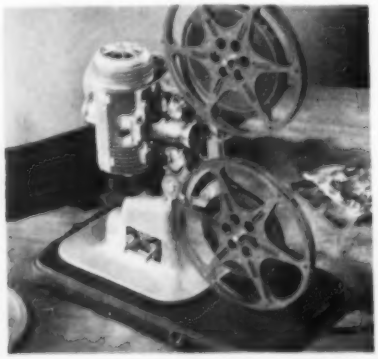
Here's good news for owners of 8mm cameras! The projector you've wanted—Bell & Howell's 253 Monterey—is now only $79.95. *Saves you $20!* The Monterey puts more light on the screen than any other make of projector. It's built into a die-cast aluminum case. Ask your Bell & Howell dealer to show you the Monterey with the $79.95 price tag!

THE 273 STATESMAN combines "most wanted" 16mm features—brilliant, 750-watt projection, easy operation, reverse and "stills," $199.95.



THE 122 REGENT outshines all other 8mm projectors, regardless of lamp wattage. All gear drive—even in reel arms. Still picture clutch. With carrying case, $179.95.

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obscure and size helps a great deal in overcoming this defect. There is also the consideration that some of your footage may have commercial value. With 8-mm, selling to a professional market is ruled out. With the same consideration in mind, I suggest shooting at a speed of twenty-four frames per second, normal sound speed, just in case you really get something different and exciting.

A magazine-load camera, as you begin to swim better and get better runs, will prove an enormous help. Unless you have a highly complex housing you will have to surface to reload and sometime or other, in an exciting sequence, this is certainly going to break your heart. The faster you can load, and the easier, just that much nearer you'll get to assuring good sequences. For the same reason long footage wind is a strong asset. As a camera can get to be a burden in the water, the smaller the camera the more places you are going to be able to take it.

Outside of human frailty, the greatest technical problem deep down is always one of exposure. Light is obvious but the condition of the water is even more important. I have found that unless you have a gold mine of your own, any fooling with artificial light is almost useless. The expense and problems involved are large and the best plan is simply to sweat out a bright day and shoot between about 10 A.M. to 3 P.M. Before shooting, however, study the water around you. All water is filled with minute particles of life—plant life, marine organisms, specks of sand, etc., all of which reflects and refracts light just as dust and fog will do. Even though your eye may not be able to pick it up, there also are often currents in the water moving masses of minutiae along. The latter is a problem of experience, of getting to know the place where you plan to work, although I have found, if the water looks generally clear, a workable rule of thumb is to open your aperture one stop more than the normal setting for similar lighting and atmospheric conditions on the surface.

For the serious underwater moviemaker exposure meters are both a must and are quite expensive. There is, however, a good way to get around this heavy cost. I found that I could take a common Mason jar (being sure its top has a rubber gasket) insert my meter, and then seal the top with plastic scotch tape. Alongside the meter, taking care not to obscure the photoelectric cell, I taped a little card with several low meter readings and added next to them their corresponding exposure readings. The Mason-jar trick will work safely in up to about eight feet of water and only in rare cases will you need other meter information than the card can supply. Total cost: 10 cents. Like the Blimp, however, test your jar underwater first. The only meter I ever lost went down to a watery grave in a leaky Mason jar.

Many people, prematurely I believe, worry about filters. A book can be (and has been) written about this problem and still the only answer is that each man, when he gets highly experienced, really has to investigate painstakingly this complex field for himself. Also, prematurely,

many people begin thinking in terms of Aqualungs and great depths. The Aqualung, that marvelous product of the genius of Gagnan and the incredible Capt. Cousteau, is something for every expert to aim at but it must always be remembered that the Aqualung is serious business, not a toy. Learning to get a mouthpiece cleared and back in your mouth at forty feet may seem and sound easy but is deadly difficult work.

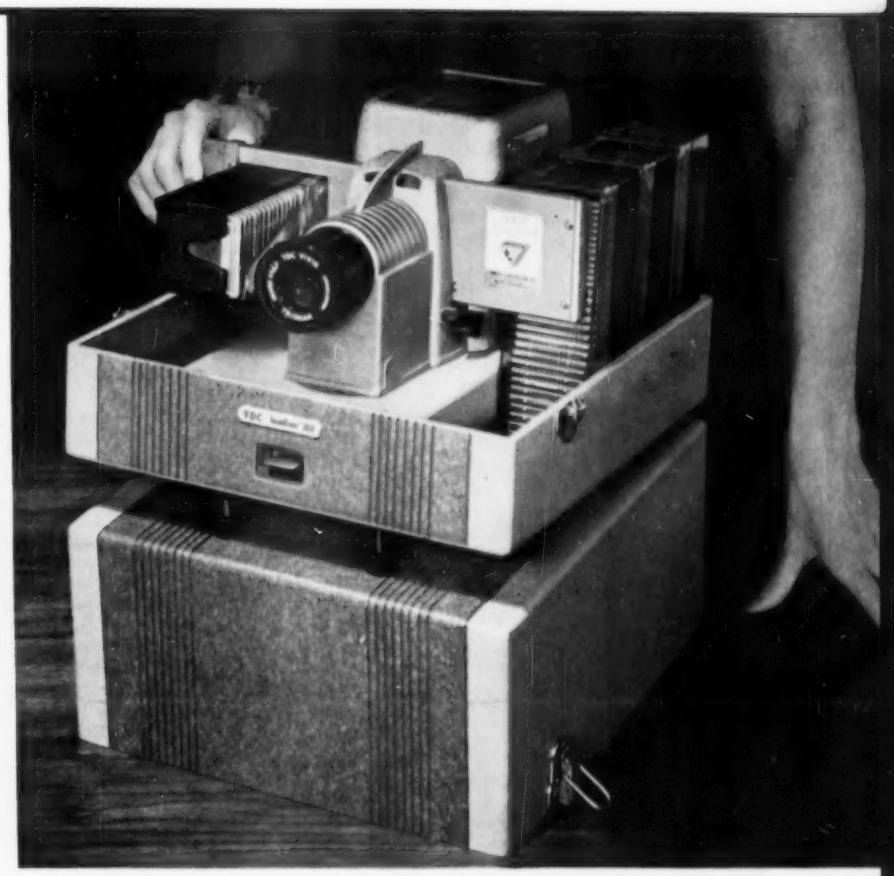
Shooting at a depth of eight to ten feet in most cases will provide plenty of ex-

Underwater still and motion picture photographer Joe Coudert, author of this article, poses near lake at Silver Springs, Fla., with Aqualung on his back, and mask on forehead.

citement and rich material. I have found that it is pretty impossible to expect, also, to get clear work beyond a ten-foot camera-to-subject range. Here again the advantages of wide-angle lenses begin to make themselves felt.

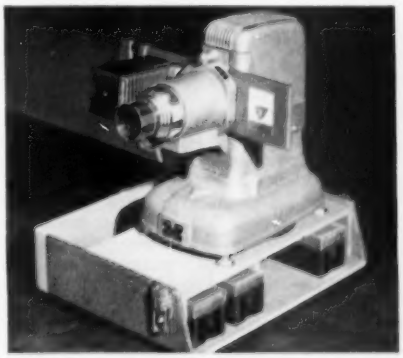
Another good tip is scouting out your shooting area before even taking your camera down with you. Get to know it the way you know your own backyard. This is important for one thing because swimming can be hard work and you will find yourself being forced to the surface with great frequency. If you know your area and have plotted exactly what it is you want to shoot, then you can make the best use of your limited time. Most first attempts at shooting a sequence, because of this, are apt to be extraordinarily jumpy and choppy. Scenes start strong and suddenly the home viewer finds himself somewhere else. Because the cameraman hadn't planned his shooting with an idea of how much time he actually had at his disposal, just as the footage begins to shape into a sequence we are left with a blur as the cameraman whips his way to the surface to gulp some life-giving air.

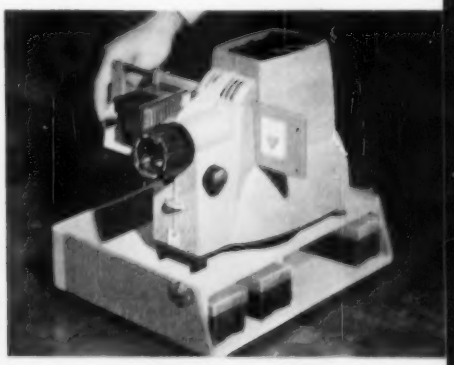
On shooting, there is one other important tip. Most people, when shown an underwater film, find it hard to follow at first. What the eye would immediately delete in a picture on the surface, such as a bush in the background, becomes a strange, eerie object in an underwater film and distracts the viewer's eye. For this reason if possible, it is smart to pan your camera slowly and allow almost



New TDC Headliner 303 at $54.50 is today's top slide projector value!

The Headliner 303, a new case-mounted model by TDC, offers the "most projector" for an amazing price—$54.50 with Selectron changer! You can carry six Selectrays in the base of the handsome, scuff-proof case—safe storage for 180 slides. Positive tilt action. Die-cast aluminum body. Improved cooling for 300-watt lamp. Coated 4-inch f/3.5 lens.





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double the time for any scene that you would allot for a similar sort of scene in the "old" world.

Once you have mastered the above tips so that they become second nature to you you'll be well on your way to becoming a real underwater camera bug. You also will be thinking about, and eyeing anxiously, every new piece of underwater photographic equipment you can get your hands on. At this stage you're happy, but you're also stuck. This is the time when you begin balancing that new addition to the house you've promised your wife against a new addition to the housing of your camera that you've promised (usually secretly) to yourself. You are now in grave danger of becoming an underwater widower, seduced by the raptures of the depths.

When you do buy more expert equipment make sure each item exactly suits your needs. For some reason few items can be returned or have any resale value. This is probably caused by the fact that potential buyers suspect that the previous owner found that the equipment didn't work properly but he can't very well strip off his clothes and dive in a tank to test it out to see if it does work properly.

More important than anything mentioned here so far is one lesson too many underwater men have had to learn the hard way. No matter where you work you must have someone with you and rely on the buddy system. A camera bug often will be carried away with the excitement of what he is recording. Before he realizes it, he is too far down or too far from shore or from his raft and he's in trouble. Most times, of course, a good swimmer will make his way to safety, but there have been a number of valuable cameras that have had to have been dumped behind in the process. With a buddy who stays alongside, fresh and rested, there is not much to fear if you keep your head, and you will even have added assurance that could help you get better footage.

There is one more thing! If you are in a shark-infested area and come across one that looks especially mean (they all *look* mean and as far as I know, few, if any, actually are) do not hit it across the snout with your camera. This can wreck good equipment and in the underwater world is considered very shoddy manners indeed.—▶

Atlantic City Trade Show

(*Continued from page* 112)

viding up to 200 wattseconds input. This is the big brother of the Megalume 1, a smaller 100-watt-second wet-cell unit introduced by the manufacturer between conventions. Interstate Photo Supply of New York also took this occasion to introduce the 135-w-s Ultrablitz Matador powered by wet cells and a-c, a 6-pound unit of apparently great efficiency. By far the most important development in storage-battery powered electronic flash are the new units offered by American Speedlight Corp. (Ascor) and Dormitzer which are powered by nickel-cadmium storage batteries. These batteries have longer life and store far more energy than conventional lead-acid wet-cell batteries; they require far less maintenance. A complete description of the Dormitzer Dynaseal power unit incorporated in the new Synctron 208-B ($190) and 200-B ($275) appeared in an exclusive article on page 130 of the May 1955 issue of POPULAR PHOTOGRAPHY. The Dormitzer power units, which are hermetically sealed, are available only with the manufacturer's Synctron equipment. However, Ascor's nickel-cadmium batteries, whose development was curtailed in 1950 with the outbreak of hostilities in Korea, are available to all interested equipment manufacturers in a 3-cell (4.2-volt) unit and a 5-cell (6.3-volt) unit. The latter is incorporated in the new Ascor-Lite "405" a 200-watt-second speedlight priced at $289 which made its debut at the Show. The smaller Ascor battery costs $22; the larger, $36.

Two new imports rounded out the electronic-flash picture. DeJur Amsco Corp. unveiled a well-known German dry-battery portable as the DeJur Electronic Flash, at $39.95. And E. Leitz, Inc., brought in the Braun Hobby "100" (watt-second) Electronic Flash outfit which comes with an interchangeable 510-v dry-battery pack at $89.45, an a-c pack at $84.50, and a combination wet-cell and a-c pack at $99.50 (including 4-volt lead-acid battery). The unit's flashtube is mounted in the reflector head on a swivel so that the light is distributed over a 50-degree field in the forward position and over 70 degrees in the rear position.

SOLID-GLASS FILTERS

A mild flurry rippled through the filter-manufacturing industry in the wake of E-K's announcement of their new lower-priced Kodak Pictorial Filter line made of solid optical glass. These are available in red, green, and yellow at $1.50 for the Series IV size, $1.75 for Series V, and $2.00 for Series VI. Kodak's more precisely color-controlled Wratten A, XI, and K will continue to be available in laminated-gelatin sandwiches at a higher price level. . . Tiffen's restyled Hi-Trans filter line introduced at the show features colored Dural rims which instantly identify the color of the filter. New numbers in the Tiffen line, designed to match Kodak's transmission curves are the 82-B for adapting Ektachrome (E-2 process) Type F color film for SM and SF photoflash illumination and the 82-C for Ektachrome Type F, used with 3200 K studio lamps.

JAPANESE IMPORTS

Compared to 1954, there seemed to be a pause in the influx of medium-priced cameras from Japan. Principal attention was focused on Konica's new Tele-Koniflex twin-lens reflex, which features matched 85-mm lenses which are converted to 135-mm by (1) attaching a supplementary element to the viewing lens and (2) replacing the front element group of the taking lens (see PP, June 1955, page 92 for details). Important Japanese lens innovations were Nikon's new symmetrical 4-element wide-angle 25-mm Nikkor *f*/4 lens in Nikon and Leica mounts (pegged around $175) and the extremely fast 50-mm *f*/1.2 and 35-

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120 or 620 SUPER-XX ROLLS
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35mm x 20-EXP. ANSCOLOR
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35mm 100ASA AERO EKTACHROME
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Ea.
8mm x 25'..2.49 — 4 for 9.35
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HIGH-SPEED 8mm MAGS
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High Speed, 100W. Process by E.K. For Bolex H-8 ..... **5.95**

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Including Processing
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127—116—616 Roll Film
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8mm x 200' Projection Reels, 12 for 2.35

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mm Fujinon $f/2$ wide-angle lens displayed by D. P. Bushnell & Co., Pasadena, Calif., with prices as yet unavailable. An interesting newcomer among Japanese twin-lens reflex cameras was the Minolta Autocord, a crank-actuated, sturdily built model, at $99.50, imported by Kanematsu and distributed nationally by the FR Corporation.

ENLARGERS

Competition among precision enlarger makers reached a high pitch at the show. Not only did Beseler display its new 5x7-inch Model 57MB enlarger, and Simmon Brothers make a welcome contribution with a new $27.50 Distortion Control Device for their established D-2 and D-3 Omega units, but a brand-new contender entered the arena—Durst of Bolzano, Italy—sponsored by Hanimex, Inc., of San Francisco. There are six basic units in the Durst line: The Reporter 35-mm Enlarger; the D609—Enlarger, 2¼x2¼ Slide Projector, and Copy Camera; The Duomat (automatic) Color Enlarger for 35-mm and smaller and up to 2½x3½-inch negatives; the Unomat (automatic) Color Enlarger for 2¼x3¼-inch negatives; the 35-mm Micromat (automatic) Color Enlarger, and the Laborator 3S—a 5x7 Enlarger and Photo Copy Camera. The price scale begins at $59.50 for the 35-mm Reporter Enlarger less lens and carrying case; ranges up to $375 for the Duomat complete with 50-mm Componar $f/3.5$ and 105-mm Componar $f/4.5$ enlarging lenses, and all the way up to $694 for the 5x7 unit (the latter less lenses). The many ingenious features, conversion facilities, and accessories that made the Durst display a center of attraction for the representatives of practically every custom laboratory attending the trade show, will be reported in detail in our *What's New* department as soon as national distribution is established for each of the units in the line. Suffice that Italian industry now has worthy representation in the enlarging-equipment field.

E. Leitz, Inc. took an important step toward broadening the market for their various enlargers by offering a set of adapters that fits a variety of miniature camera lenses to the standard Leitz enlarger flange—threaded Exakta lenses ($2.40), bayonet Exakta lenses ($6.60), threaded Robot lenses ($2.40), and bayonet Contax lenses ($3.30). And in the economy department, Testrite introduced their Junior Fotolarger, a diffusion unit taking 35-mm to 2½x3¼-inch negatives offered with rotating negative carrier at only $15.95. Simplest available lens for the unit is a 90-mm, $f/6.9$ objective with Waterhouse stops and a built-in rangefinder to assure sharp focus, at $5.00.

SLIDE PROJECTORS

The continuing boom in color-slide making was reflected in the variety and pricing of 35-mm slide-projector offerings. Attractive styling keynoted the Skot projector line of the American Optical Company, the redesigned Skan projector line, and the new Showman "300" and Director "300" introduced by La Belle Industries of Oconomowoc, Wisconsin. Kodak announced the Kodaslide Signet 300 Projector Model A, a $59.50 entry at the show. Revere introduced scaled-down versions of their 888 automatic magazine-type projector—the Revere 553 (300 watts) and 555 (500 watts) at $69.50 and $79.50. These incorporate most of the features of the unique 888 design, but lack fully automatic operation.

CINE EQUIPMENT

New equipment for home-movie makers and professional 16-mm workers reflected an insistent demand in this field, particularly roll-loading equipment. The Ciné Kodak K-100 (16-mm) roll-loading camera was unveiled to fill a place in their line between the Ciné Kodak Special and the Royal. The K-100 has matched interchangeable taking and finder lenses and many other unusual features—price $269 with $f/1.9$ Ektar lens. Keystone and DeJur Amsco introduced neatly designed and restyled versions of their popular magazine-loading cameras in the 8- and 16-mm field at competitive prices, while Revere finally yielded to the demand for a roll-loading 16-mm camera by introducing a single-lens model, the C-101 ($139.50 with fixed focus 1-inch $f/2.5$ Raptar) and a divergent three-lens turret model, the C-103 ($169.50 with the same lens equipment) . . . Bell & Howell contributed what they proudly call the most versatile and fastest 16-mm cine-lens combination in the world, which can be attached without any modification to the turret flanges of the B&H 70-DL and 200-TA Auto Master cameras. It consists of two new B&H-Angenieux lenses, a 10-mm, $f/1.8$ wide-angle, a 1-inch, $f/0.95$ normal, plus a 3-inch, $f/2.5$ telephoto announced last December. The net magnification range is 7½-to-1.

Two new Wollensak supplementary lens attachments for 8-mm cine cameras appeared—a wide-angle auxiliary providing an effective focal length of only 6.5 mm and a telephoto attachment providing a 3x magnification—both priced at $22.95. These attachments have a self-contained filter ring and can be adapted to the Bell & Howell Monterey and Wilshire as well as the Brownie. . . And a new advanced zoom-type lens for 16-mm cinematography made its debut under the auspices of Paillard Products: the 16-mm Pan Cinor 70 and 16-mm Pan Cinor 100—both providing a 1 to 4 range in the continuously adjustable focal lengths provided. The "70" varies between 17.5 and 70 mm, and the "100" between 25 and 100 mm. Both provide through-the-lens reflex viewing with a maximum aperture at an unprecedented $f/2.4$. They both cost $449.50.

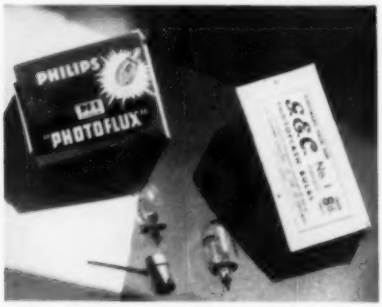
MISCELLANY

A big surprise at the show was DeJur-Amsco's expansion into the electronic flash tape recorder, and 35-mm camera fields. Heretofore, DeJur was noted for its ciné cameras, ciné projectors, exposure meters, and a lone single-lens reflex camera. All three of the new items are products of Western Germany—the electronic flash, referred to above, being the lightweight Babyblitz; the tape recorders, two models of the Grundig ($300 to $400), and the camera, known as the DeJur Model D-1, a product of DeJur's newly

acquired plant in the Federal Republic of Germany. The camera is a leaf-type behind-the-lens shutter job listing for $42.50, with 45-mm *f*/2.8 lens and providing for interchangeable lenses. Complete outfit, including 85-mm *f*/5.6 Telon telephoto, 38-mm, *f*/3.5 Staeble-Choro wide-angle lens, ready case, fitted compartment case, and combination viewfinder, is priced at $99.50.

Here are some interesting miscellaneous details we noted in the course of our interviews:

AMPLEX, who distribute Philips (Eindhoven, Netherlands) photoflash lamps here have no plans to bring in the new inexpensive capless flashbulbs that are



Low price has made "capless" flashbulbs with interchangeable base popular abroad; U. S. import plans are still in abeyance.

now so popular in England (PP, June 1955, page 18). There is also a competitive G-E capless bulb in England of German manufacture. Could Nela Park be tuning in? . . . RADIANT LAMP CORP. now offers a 300-watt T-10 S horizontal-burning projection lamp specifically designed for use in the Revere 444 Projector —25-hr. life, $3.75. . . In the very near future, all *Westinghouse* projection lamps will be identified by their blue tops, which serve as an opaque screen against stray light.

KEYSTONE'S new tape recorders have been engineered in co-operation with Magnecord, a company of outstanding repute in the high-fidelity equipment field . . . and Keystone's two new Magna-Scope ciné projectors are fitted with wide-angle lenses that produce a 78 percent larger than normal image at a given projection distance.

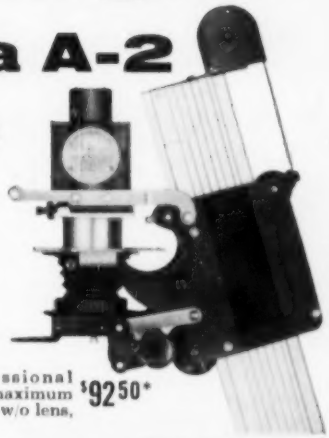
Equidistant spacing of lens stops, a balanced two-hand focusing system, and improved Set-O-Matic for automatically adjusting the lens aperture for flash photography are features of the new $79.50 BOLSEY Jubilee Camera which comes complete with a ready case and a flashgun that swings back on a hinge for bounce-light exposures. . . AREL'S new Rocca Automatic (twin-lens) Reflex Camera has a crank-type film advance and shutter-cocking lever that moves forward only; also a half-silvered mirror in the front panel of the focusing hood which serves as a direct eye-level finder, but in bright light only.

Telescoping pocket-size tripods are still very much with us: SAUL BOWER, INC. announced two 8-section additions to their line—both units measure 11 inches when closed and stand 55 inches high

omega enlargers

New omega A-2

35mm enlarger with built-in Colorhead



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- Sturdy cantilever construction
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Compact A-2 Portable without lens or Travel Case, $87.50*

A-2 Professional Model for maximum size prints, w/o lens, $92.50*

New Automega E-5 ENLARGER Negatives to 5" x 7"

- Most advanced automatic focusing
- New "floating" autofocusing track for critical sharpness
- Interchangeable lenses 3½" to 7½"

Without lens $265*

New Distortion Correction Attachment

For tilting and rotating negative on all B and D models without disturbing enlarger alignment. $27.50*

omega D-2 4" x 5" Manual Focus Enlarger..... $173.50*
Automega D-3 4" x 5" Autofocus Enlarger..... $197.50*
Automega B-5 2¼" x 3¼" Autofocus Enlarger.. $134.50*
omega B-6 2¼" x 3¼" Manual Focus Enlarger... $109.50*

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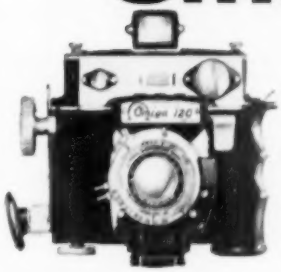
THE BRILLIANT, NEW "*Sharpshooting*" CAMERA

omega 120



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PLUS precision-matched, color-corrected f:3.5 Steinheil Cassar lenses. Speed to 1/200 sec. • Self-cocking shutter • Rapid rewind • Focusing 2½' to infinity

You be the judge — and you'll be the owner of a KIN-DAR stereo camera. No other camera gives you so many quality features per dollar. *It's versatile, too.* Not only can you view your colorful slide in thrilling three dimensions — you can also have prints made and project in either two *or* three dimensions.

Compare KIN-DAR at your dealer's* today. You'll agree you've never held a more "inviting" camera! Write for literature, Dept. PP-75, KIN-DAR CORP., South Milwaukee, Wis.

*Ask him to show you the complete line of accessories, too.

when fully extended. They are made of aluminum with a black-ribbed finish—$14.75 for the 14-ounce flat-head model and $16.50 for the 18-ounce round-head type.

"Cony" is the trade name of a new line of anti-static polonium brushes marketed by C&K GUGGENHEIM, of Edgewater, N.J. One of their interesting units for commercial labs is designed so that the negative strip is drawn through two pairs of brushes separated by a broad polonium-activated element—$42.50 for the 35-mm model and $52.50 for the model taking films up to 3 inches wide.

New photoflash battery line was introduced by the OLIN-MATHIESEN CHEMICAL CORP. whose original venture in the photo field was the 480-volt battery pack that powers the Hico Lite 109 and 228 electronic flash units. A, C, D, and 22½-volt BC batteries comprise the new line. . . A somewhat revolutionary innovation in photoflash power supply was P. R. MALLORY AND COMPANY'S offering of 4 BC cartridges, a 4.5-volt A-cell size battery and a 1.5 volt battery in AA format—all based on newly designed mercury cells which are claimed to operate between 32 F and 150 F without any significant effect on their efficiency. Two-year service life is claimed for all the BC cartridges, and "over a year" for the individual battery units.

A novel approach to telephotography is embodied in the Bino-Foto outfit introduced by D. P. BUSHNELL—incorporating a Bino-Foto adapter which couples most 35-mm, twin-lens reflex, and movie cameras to either of two special Bushnell binoculars (one 7x50 and the other 7x35)—priced at "less than $100" and offered for July 1 delivery. In the case of twin-lens reflex cameras, one of the binocular eyepieces is coupled to the viewing lens and the other to the taking lens so that the camera can be operated in the usual manner. The binoculars can be used visually as well, detached from the camera adapter. . . A reverse twist on the Bushnell idea is the $4.80 telescopic eyepiece that E. LEITZ announced which convert all 50- and 90-mm Leica lenses with screw mounts for visual use. The respective linear magnifications are 3.5x and 6x.

DAVIS & SANFORD demonstrated their 3V Trivision montage device for trick photography with still and ciné cameras, at $12.50. The attachment fits in front of the camera lens, producing either two or three images simultaneously on a single film frame. The attachment also serves as a reflex viewfinder producing an enlarged image of the field covered by the lens.

An interesting method of filing and previewing 2x2-inch color slides was offered in the WESTPHAL (Angwin, Calif.) Color Slide Previewer System, which consists of a large Handi-Viewer Cabinet ($39.60) with a built-in diffused light source and a Color Slide Selector Album ($14.70) comprising 12 carriers which accommodate 16 slides each. The albums are mounted on the cabinet and each carrier is pulled out so the slides can be viewed by the cabinet light source. A device is provided for removing and replacing slides in the carrier.—▶

Fill-In Flash for Color

(*Continued from page* 81)

or resorting to placing your subject in the shade, where color quality cannot be depended upon. If you can't control the brilliance of the sunlight, you *can* control a second light of your own—a flashlamp to "fill in" those deep shadows with just the right amount of extra illumination to make the results more pleasing to the eye.

This method—sometimes called "synchro-sun flash"—looks tricky at first, because you've got to know exactly how much extra light you're going to add via the flashlamp, in order to balance it correctly with the sunlight already there. But it isn't so hard as it may look, if you take a close look at the factors involved. Perhaps a few definitions are in order first.

In the language of lighting, the *main light* is the one that supplies most of the illumination, and is usually placed at an angle to the subject so it will cast shadows which define and model the facial characteristics. The *fill-in* light is usually placed quite close to the camera so that it illuminates the subject evenly, without casting any shadows of its own. But its light does reach the shadow areas cast by the main light. As mentioned before, the *contrast ratio* is a comparison of the intensity of the light falling on the highlights and that falling in the shadow areas. A graphic example of this would be as follows: two flashlamps of a given size are used as the main light, and one flashlamp of the same size—placed at the same distance from the subject—is used as the fill-in. The light falling on the highlights amounts to the two units of the main light, *plus* the one unit of the fill-in. The light in the shadow area amounts only to one unit, that from the fill-in alone (that's why it is a shadow area—light from the main source doesn't reach that particular spot). This would be called a contrast ratio of 3:1.

Another point to remember before you start is that the exact contrast ratio to shoot for will vary according to your own preference, the particular situation, and the use to which you intend to put the finished transparencies. If you plan only to view them on a light box, or project them on a screen, ratios from about 4:1 to 6:1 are acceptable. If you intend to have the transparency printed, however, it's better to try for less contrasty results—in this case, ratios of 2:1 or 3:1 are better. Also remember that you're working outdoors with Daylight Type color film—and must use blue flashlamps (or electronic flash) to match the balance of the film.

There are several different techniques you can use in different situations, but in all of them, the first thing to do is to take a meter reading off the highlights of your subject. The exposure which it gives you is the basis for figuring the right amount of fill-in flash. The most basic technique is the *distance* method. Here you control the intensity of your flashlamp by moving

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it closer to, or farther from, the subject. This works because it makes use of one of the basic properties of light: it becomes weaker at a definite rate, the farther away it is from an object. In scientific terms, we say that the light varies inversely as the square of the distance from the light to the object. In other words, if you were standing 4 feet from a subject, and then backed away to 8 feet, you would have doubled the distance between yourself and the subject, and the amount of light falling on the subject would only be one fourth as much as it was at the nearer distance (*not* one half as much). By the same token, if you moved closer, from 8 feet to 4 feet, you would get four times as much light on the subject (not just twice as much).

This is an easy example. But when you start dealing with odd distances, you'd have to turn into a higher mathematician to be able to know just how much relative light you were getting on your subject—if we hadn't made it easy for you with the handy Fill-in Flash Lighting Ratio Calculator on page 64. This gadget does all the hard work for you.

Start off with the meter reading. Then take the *f*-stop indicated, and divide it into the guide number for the particular flashlamp you're using. This step gives you the distance for obtaining a 1:1 contrast ratio—that is, the light from the fill-in flashlamp will exactly equal the sunlight, resulting in no shadows or modeling at all. On the lower scale, this is designated by the "Index" arrow. Set this arrow at the proper distance on the upper scale, and then read off from the arrow labeled with the contrast ratio you want, the distance you should be from the subject to get those results. Note that this means the *flash* must be at this distance; in cases where you want to be near the subject for close-ups, but want the flash farther back for a higher fill-in ratio, you can use an extension cord for the flashgun, clamping it to a tripod or other support, or having an assistant hold it at the right distance and in the right place—as close as you can get to being in the same line with the camera, without having the photographer blocking some of the light.

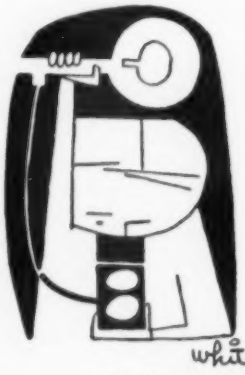
Here's an example of the calculator in use: You're using a 25B bulb with Kodachrome, and the meter reading indicates 1/50 sec at *f*/8; the guide number for this film-lamp combination is 50. You divide (*f*/) 8 into 50, giving you a distance of about 6 feet. Now set the Index arrow on 6 feet, and pick the arrow which represents the contrast ratio you want—say, 3:1. The 3:1 arrow indicates about 8½ feet. If your flash is at this distance from the subject, you'll get a contrast ratio of 3:1. Simple?

Now suppose that your flash isn't adaptable to use with an extension cord, and to move your flash backward and forward to get the contrast ratio you want, you have to drag the camera along with it—thus limiting the framing and image size. If the lamp you've been using doesn't let you stay up close in a particular situation, you can change to a smaller bulb and stay about where you are. Particularly good for close-ups are the new sub-midget bulbs, which will let you get very close because of their relatively low light output. The only drawback with bulbs of this size is that none are made with a blue coating. You'll either have to make your own with one of the blue dyes available for coloring clear flashlamps, or use a blue shield in front of the reflector.

For non-critical work you can also place a white handkerchief in front of the reflector to cut down on the light intensity of the lamp. Generally you can assume that one fold of the average man's white handkerchief will cut down the light by about one stop; additional folds cut down the light by another stop each. However, only some experimentation will show you exactly how much less light is thrown. Also, even the "whitest" material is somewhat yellow, and this quality may act as a filter, cutting down on the blue of the lamp and tending to "warm up" the transparency.

One other technique to increase the versatility of fill-in flash is the *shutter* method. This makes use of the fact that if you make a synchro-sun exposure at a shutter speed slower than 1/50 sec, you will actually be using more of the natural sunlight without using more of the flash light.

To understand how this method works, let's go back to the example we used in describing the distance method. There the original basic exposure was 1/50 sec at *f*/8, and we found that for a contrast ratio of 3:1 we had to stand at 8½ feet. Now suppose we want to work at this same distance, but need a *higher* contrast ratio. How to get it? Use an equivalent exposure with a slower shutter speed—example, 1/25 sec at *f*/11. Now use *f*/11 instead of *f*/8 to divide into the guide number, which was 50 in the original example. This gives a distance of 6½ feet for the contrast ratio of 3:1. Since we're actually still standing at 8½ feet, effectively half as much fill-in from the flash will be used, and the ratio increases to about 4:1. You can do the same thing to get a lower contrast ratio—simply by using a *faster* shutter speed than 1/50 sec (thus making use of effectively *less* of the natural daylight, proportionately more of the flash). This shutter method is handy when you're forced to work at a distance that doesn't readily lend itself to a particular contrast ratio. Just select the distance you need, get the contrast ratio for that distance by using the Calculator, and then use the shutter technique to increase or decrease the contrast ratio the way you want it.



Color Exposure

(*Continued from page 76*)

exposure in bright sunlight conditions.

The black-and-white worker, in addition to having the advantage of speed, also has many controls at his disposal that are not available to the average color shooter. If he make errors in exposure these can be corrected to some extent in the development of the film. He also has a choice of several contrast grades of paper to achieve the best result from his negative, or he can use one of the variable-contrast papers for his prints. He also has printing tricks such as dodging and printing-in at his disposal. With these he can lighten slightly underexposed areas and darken slightly overexposed portions.

The color worker has no such tricks at his disposal. Most of what composes the finished picture must be placed there at the time of exposure.

In addition color films don't have the latitude or leeway in exposure that black-and-white materials have. This means that except for the casual color snapshooter, exposures must be carefully calculated, preferably with the help of a good exposure meter intelligently used.

Latitude

Latitude is the ability of a light-sensitive material to absorb exposure errors. A film that is capable of producing good pictures despite mistakes in exposure is said to possess wide exposure latitude. Another way of saying latitude is "leeway."

The latitude of color films is not as great as that of most black-and-white materials. However not all color processes have the same degree of latitude. Reversal films such as Kodachrome, Ektachrome, and Anscochrome require somewhat more accurate exposure than do films of the negative variety such as Kodacolor and Ektacolor. (The reason for this is that in reversal processing the laboratory procedure is generally a more or less fixed operation. Therefore, the final result is heavily dependent on the initial exposure given in the camera. On the other hand, if mistakes are made in the exposure of color negative films, corrections can be made during development and in the final making of a color print or transparency.)

When the lighting or subject contrast is low, variations from the normal exposure are less likely to cause failure than when light or subject is contrasty in nature. This is the reason why beginners in color are often advised to work with the subject fully illuminated by direct front light. The purpose, obviously, is to avoid deep shadows, keeping the lighting contrast low. Other low-contrast lighting situations include hazy days, cloudy days, and open shade.

Low-contrast subject matter permits quite a bit of variation from normal exposure with some assurance of success. Inherently low-contrast subjects are those in which there are no sharp differences in tonal values even though there may be wide variations in hue. A

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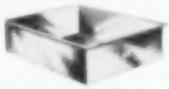

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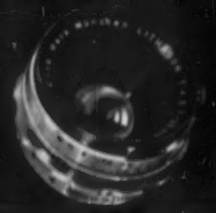

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blond fair-skinned girl in a pastel-colored costume would be one instance of an inherently low-contrast subject. A pink blossom against a blue sky of approximately the same tone is another example.

When the lighting contrast is high or the subject has high inherent contrast, exposures must be more critical.

Contrasty lighting situations occur on bright sunny days when the subject is illuminated from the side or back so that dark shadows as well as bright highlights are visible from the camera position.

Inherently contrasty subjects are those which possess a wide range of brightness differences. Thus, the blond fair-skinned girl mentioned above but now dressed in very dark-colored clothing would be considered a high-contrast subject. A light red rose against dark green leaves is another example of a contrasty subject.

High-contrast subjects and scenes in contrasty light require careful handling. Exposure preferably should be calculated with the aid of a good exposure meter that can read reflected light.

There is a practical limit to the amount of contrast within a subject that most color processes can handle and still show reasonably correct color values. This limit is a contrast or brightness range of about 4 to 1. This means that the lightest important part of any scene should measure no more than four times as bright as the darkest important part if correct color rendition is wanted in these portions. This doesn't mean that if the range is greater than 4 to 1 there will be no detail in areas outside this range. It simply means that these areas cannot be expected to show the best color fidelity of which the film is capable.

If the lighting contrast is too high for best results the use of reflectors or fill-in flash may help to bring it within the contrast range or latitude of the film. Natural reflectors such as sand, snow, nearby light buildings, and white clouds also help to reduce lighting contrast.

The contrast of inherently contrasty subjects may be reduced by directing extra light at the darker portions or by shading the lighter area. (See *Flash Fill-in For Color*, elsewhere in this issue.)

If you are unable to exercise any control over the lighting contrast of your subject, then take exposure-meter readings from the most important parts of your subject, using these as a basis for lens and diaphragm settings.

What Is Correct Exposure?

The makers of color films never intended that their products be used as devices for matching colors or making perfect facsimile records of objects. The purpose of color films is to make pleasing color pictures. Please don't misconstrue this to mean that color films can't produce reasonably accurate color records. They generally do so. However, if you demand theoretically perfect color rendition you will find yourself looking through a densitometer more often than through a camera viewfinder.

From a pictorial point of view, any exposure that produces pleasing colors in the important parts of the subject

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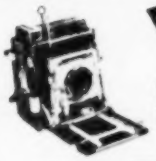
Super Ikonta B f/2.8 Tessar X. synch	299.50	189.00

Many others—write for complete list.



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w/135mm Tessar f/4.5, MX	245.00	289.00
w/127mm Ektar f/4.7 MX	269.45	313.45
w/150mm Tessar, f/3.5, Sync	295.00	339.00
w/150mm Xenar f/4.5 MX 1/400	249.50	294.50
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23 Graflmatic Film Holder for 2¼ x 3¼	17.95	14.40
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45 Grafmatic Film Holder for 4 x 5	24.95	19.95
Graflarger Stand	19.95	16.95

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w/105mm Tessar, f/3.5, MX	245.00	289.00
w/101 Optar f/4.5 MX 1/400	279.05	318.35

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Leica IIF body, built-in flash	180.00
Leica IIIF body, built-in flash	177.00
Leica IIF with f3.5 Elmar	336.00
Leica IIIF with f/2 Summicron	

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50mm Summarit, f1.5	180.00	177.00
50mm Summicron f2	159.00	156.00
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		✓				$419.70
			✓			$629.25
				✓		$515.15
Two lens Outfits	✓			✓		$505.15
		✓		✓		$714.70
			✓	✓		$635.60
				✓	✓	$635.60
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		✓		✓	✓	
			✓	✓	✓	

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may be considered "correct." The exposure given by the various tables and exposure meters on the market are close enough to the theoretically perfect to give admirable results, if used correctly and intelligently.

Over- and Underexposure

OVEREXPOSURE results when too large a lens opening is used, when too slow a shutter speed is used, or a combination of both.

An overexposed *color transparency* is too light. Details in the highlights or lighter portions of the picture usually are "burned out" and the over-all colors are weak and washy looking.

An overexposed *color negative* is too dense. The highlight areas, now the darkest part of the picture, are lacking in tonal separation. Color prints or transparencies made from overexposed color negatives are generally flat with muddy highlights and weak, flat, over-all color.

UNDEREXPOSURE results from too short an exposure, or from too small a lens opening.

Underexposed *color transparencies* are too dark in appearance. Shadow areas generally lack detail and color, and the over-all colors tend to look dense and muddy.

Color negatives that are underexposed will be too thin or light, especially in the shadow portions. Prints and transparencies made from these will be flat with shadows devoid of depth or color.

There is a tendency to OVERexpose: Distant scenery, mountains, pastel-colored subjects, scenes involving sand and snow. Such subject matter should be given ½ to 1 stop less exposure than the normal exposure under existing lighting conditions. Scenes taken on dull days have a tendency to look overexposed even though an accurate meter reading is taken. Less exposure, by about ½ stop, will give punchier, more pleasing colors.

There is a tendency to UNDERexpose: Nearby scenes with heavy dark-green foliage, dark buildings, flowers on dark-green leaves, landscapes with heavy shadows on important areas, pictures in deep woods, most dark-colored objects as well as those of strong primary hue. Make sure you read the important dark parts of your subject properly when using an exposure meter.

DON'T FORGET to allow extra exposure for color-compensating, light-balancing, or polarizing filters. If you don't, your color shots may be underexposed. Check manufacturer's data for recommendations.

Exposure Meters

At first thought it would seem that the purchase and use of an exposure meter would permit almost anyone to make "perfectly exposed" color shots almost immediately.

In all fairness to exposure-meter makers, as well as to the photographers, it should be stated that this idea is not sound at all.

Exposure meters used intelligently can and do give the exact answers to difficult exposure situations. They won't do this automatically, however, nor does any reputable meter maker claim his meter will give automatic answers in all situations.

In order to read the meter properly, the photographer must know what he is after, have a good understanding of his materials and subject matter, and have made as thorough a study of his meter as he has of the operation of his camera. Beginners especially will do well to become thoroughly familiar with camera operation before learning the intricacies of an exposure meter. But they will do well to own an exposure meter and learn to use it judiciously once they have become familiar with their apparatus.

When using an incident-light meter make sure that the same light that is being used to take the picture is allowed to fall on the photo-cell. Out in the open this is no problem and readings can be taken at camera as well as subject position. If your subject is indoors take your reading holding the meter close to the subject. If your camera is in the shade and your subject is in the sun, take your meter out into the sun. If this is impossible, use the reflected-light attachment that comes with your incident-light meter. Except in this last instance, the photo cell of an incident-light meter should be pointed toward the camera lens.

When using a reflected-light meter make sure you are taking readings of light reflected only from the important parts of your subject. Hold the cell close to your subject, being careful you don't read the meter's own shadow. Shield the meter from extraneous light such as reflections from nearby water or the light from a white dress or shirt you may be wearing. In landscape work, some meters should be pointed downward slightly to avoid getting abnormally high readings from light from the sky.

Exposure meters are delicate instruments and should be treated with as great care as a good camera. Never expose an exposure meter to excessive heat. In the summer time never place an exposure meter in the glove compartment of a car

FEININGER

retains good rendition of red or warm colors over a wide range of exposure

the slower ones. The reason for this is that it takes the shutter a certain amount

or in a hot trunk. The heat may ruin the cell.

Bracketing

There will be times when you will be extremely anxious to get a particular picture. The scene is one that thrills you very much, and its proper recording would mean a lot to you.

A scene like this certainly is worth more than one exposure. To make absolutely sure of getting at least one slide with the best possible pictorial effect, make at least three exposures. One of these should be at the metered or estimated exposure, the other two at one stop over and one stop under the rated exposure. Very often, even though the meter reading will be "correct," one of the other two shots is better from a visual point of view.

Film Speed Ratings

The film speed rating or exposure indexes are only suggested values used in setting your exposure meter. They should not be looked upon as absolute values.

Individual cameras and equipment vary considerably. Some shutters are slower than others, some lenses transmit more light than others of equivalent *f*-rating, and personal tastes as to density of transparencies vary also.

If you find that you are getting consistently too dense or too light a result in your finished transparencies, then raise or lower the rating of your film accordingly.

To find the proper rating for your equipment, shoot some film at the normal setting and make two extra exposures at the next higher and lower settings, respectively. The finished pictures will indicate your own "personal" exposure rating.

Color Balance and Exposure

As we alter our exposure, each layer in the color film responds somewhat differently than does its neighbors. In the region of correct exposure, the response is sufficiently similar so that slight alterations of the amount of light reaching the film will not produce significant color changes.

As we approach the regions of under- and overexposure certain colors lighten and darken, shifting color more rapidly than do others. Just how much shift and in what direction depends largely on the make and type of color film you are using.

This shift in color and emphasis can be used creatively in many cases.

For instance, one make of color film

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retains good rendition of red or warm colors over a wide range of exposure changes. (In other words its greatest latitude is in this color region.) At the same time, slight underexposure of blue or green means rapid darkening of these colors.

If we were to photograph a red rose against a blue sky with this particular type of film and underexpose slightly, the red flower would hold its hue while the blue would go very dark, leading to a dramatic effect. On the other hand we could overexpose slightly to make the sky less blue, yet not lose the color of the rose.

Consult the manufacturer of the particular color film to find out the particular color shift you can expect on changes in exposure . . . or better yet, this field is wide open for experiment.

Lens Transmission and Dirt

If you want the best light transmission from your lens, make sure it isn't covered with dust and grime. Also take care of it properly so that it doesn't become covered with scratches. Aside from loss of light, dirty or badly scratched lenses often are the cause of fuzzy, flat, and foggy-looking color shots.

Therefore keep your lenses covered when not in use. Both rear and front of interchangeable lenses should be capped when not in use. If your camera doesn't permit the use of caps, keep it closed and in a case.

Dirty lenses should be cleaned carefully. Use the special photographic lens tissue and cleaning fluids. Remove all grit before polishing a lens. A rubber ear syringe will help to blow grit off. Wipe gently.

If dirt is accumulated inside the lens, send the lens to its manufacturer for cleaning, or if this is not practical let a competent camera-repair or optical shop do the job. The charge for this is usually much lower than the repair costs for a lens that has been improperly disassembled and reassembled by you.

Clean your lens only when absolutely necessary. Most of the time, blowing the dust off the surface is all that you should do. Many lenses are covered with scratches produced by excessive rubbing.

Shutter Efficiency

Many actual shutter speeds do not correspond to those marked on the shutter-speed dial. Also there may be variation from speed to speed (and these may not be directly proportional to each other) so it is wise to choose one speed as a standard to work with, and vary the diaphragm as the light conditions change.

The diaphragm itself should be manipulated carefully to insure uniformity of results. Diaphragms suffer from backlash. For consistent results always stop down or open up by moving the diaphragm in one direction only. Thus many workers always open up wide first and then stop down to the required opening when moving from a smaller aperture to a wider.

Shutters vary in efficiency depending on the speed at which they are used. The high speeds are less efficient than the slower ones. The reason for this is that it takes the shutter a certain amount of time to open and close. (Focal-plane shutters also are less efficient at high speeds when a narrow slit is employed.) During this opening and closing time the lens is not fully uncovered . . . in other words it is "stopped down" by the shutter blades. As the shutter speed becomes faster, the opening and closing of the blades occupies more and more of the shutter's total time open, lessening its efficiency.

Therefore if you have been shooting at 1/50 second and *f*/8 don't expect precisely the same exposure results at 1/400 and *f*/2.8. If you know that you must do some high-speed shooting first make tests bracketing your exposures. This will tell you what compensation to make.

If you have two cameras of the same make with the same shutter, try shooting the same exposure at the same speeds on films of the same emulsion number destined to be processed together. This will tell you which camera's shutter may be faster or slower. You can then make slight compensation in diaphragm settings if necessary.

Reciprocity Failure

When sensitive materials are given exposures that are much longer or shorter than the normal or average exposure times for which they are designed, results sometimes depart quite a bit from the expected. Thus, very long exposures at small diaphragm stops or low light levels, or the very short exposures given by some electronic flash units, may make color film behave somewhat differently than usual—changing color balance, reducing the effective film speed, and sometimes altering contrasts.

The effect is somewhat analogous to what happens when a housewife fries eggs. The results, both in flavor and appearance, wouldn't be the same when fried quickly over a large flame as when fried slowly over a low fire.

In many cases, the effects of reciprocity failure will not be serious enough to detract from the pictorial value of your pictures. In others the use of light-balancing filters and increased exposure times will be called for.

However, if you need precise rendition for some special technical or scientific purpose, consult the film maker for specific recommendations. Give him all pertinent information, emulsion number of the film you intend to work with, exposure time to be used, nature of the subject, light source, and processing conditions.

Exposures for Close-ups

When using extension tubes or bellows in close-up photography, don't forget to allow for the extra exposure required. How much extra exposure will be needed may be found easily by use of a Kodak Effective Aperture Kodaguide, or by means of the formulas found in the Kodak Data Book, "Kodak Lenses, Shutters and Portra Lenses."

Close-up supplementary lenses require no change in exposure. Use small stops to maintain sharpness.—

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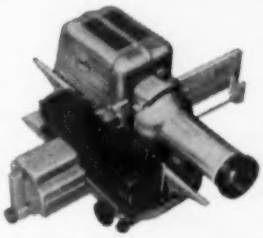
16mm Twin-lens Reflex. Smallest, lightest, focusing reflex camera made! Ctd. f2. Speeds: 1/10th to 1/400th and "B." Double exp. prevention.

Eveready Case	$3.75
Spec'l Minicord Enlarger	$7.50
Spec'l Developing Tank	4.75
25 Exposure B&W Film to Mag.	1.00



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2 x 2 Automatic Slide Projector with Change-O-Matic

300 Watt, motor fan cooled projector with 5" Luxtar lens. Takes all 2 x 2 slides in any type mount or binder, intermixed. Reg. $67

SPECIAL.... **$44**

with standard carrier (instead of Change-O-Matic)..... $33.95

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CASE OF 120
Famous brand! Reg $15.60
SALE $9.50

SAVE $8—BRAND NEW!

Norwood FLASHRITE Exposure Meter

Perfect solution to accurate exposure in flash photography. Amazingly accurate. As easy to use as a rangefinder. Orig. $12.95.

SPECIAL—$4.95

Case $1.50

Special—Save 40%
Brand New Model SM-1

SKAN
Photoelectric Cell
Exposure Meter

Reg. $14.95
SPECIAL **$8.95** w/case

Display Model
EXPOSURE METERS
New Performance Guaranteed

	REG.	SPECIAL
WESTON II	$29.95	$22.45
WESTON II CINE	29.95	22.45
WESTON DR	16.50	11.95
G.E. PR-1	32.50	23.95
G.E. DW-68	24.50	18.40
NORWOOD COLORMATIC	32.95	23.95
Case for Norwood		$2.25
Case for other models		1.75

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KINE EXAKTA VX
With original CARL ZEISS BIOTAR Preset f2 ctd. lens.
Cpld. film transport, shutter cocking and frame counter • Full Synch. • Factory Guarantee, Import Certificate and Registration.

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PENN SPECIAL $199 Disc. Model

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RANGE-FINDER PRISM
Eye level view-finder and automatic split image range-finder. Complete with extra ground glass and case

$88 Value SPECIAL **$37.50**

Range-Finder Glass Only.... $12.75

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Write for Free Literature

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35mm Reflex
W/3 Pt. Front Full Synch.

Focal Plane Shutter • Interchangeable lens feature • Fully synchronized for Flash & Flee-Flash • Reflex Eye Level Finder & Magnifier • Automatic Shutter Cocking & Film Transport • Factory Registration.

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100mm, f4.5 ctd. TELEPHOTO lens. Reg. $34.95.
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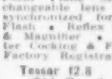

Brand New! Standard Double
CUT FILM HOLDER
Fits all Graphics and other cameras with standard press-type Spring Backs.

	Reg.	Spec.
2¼x3¼	$3.95	$2.79
3¼x4¼	3.99	2.89
4x5	4.19	2.99
5x7	4.71	3.39

Minimum Order—3 Holders

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LATEST MODEL
AIRES AUTOMAT
Double Bayonet Lens Mount Takes Rollei Accessories

• 2¼ x 2¼ • F3.5 coated lens • Rapid lever wind advances film and cocks shutter • Automatic film stop and exposure counter • Click shutter & diaphragm settings • Speeds from 1 to 1/500 sec and B • Body release • FX Synch • Sports Finder • Reg $160

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Model C60
8mm Camera
w/f2.5 lens
Model P85
8mm
Projector
Total List
Price—$212
SPECIAL
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(used)

Camera
Alone
$54.50
(used)

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"HI-FI" Challenger

DA-LITE
Projection Screens

Enjoy Hi-Fidelity in both your slides and movies with the world's only High Fidelity Projection Screen that sets up with a mere press of a button.

40x40 — Reg. $26.50 — **$14.55**

50x50 — Reg. $33.90 — **$18.60**

VINYL ZIPPER CASE
40"...**$4.69** 50"...**$5.49**

DARKROOM VENTILATORS

Remove chemical odors and provide a constant flow of fresh air. Absolutely light tight, silent, easy to install. Single blower moves 90 cu. ft. per min. Dbl. blower moves 185 cu. ft. per min.

Reg.	$4.95
AC Sgl. Blower Reg.	$11.50
AC Dbl. Blower Reg.	$21.50
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MIGHTY MIDGET, AC Reg. $69.50	$44.50

ALL ABOVE UNITS USED, IN EXCELLENT CONDITION AND FULLY GUARANTEED

FREE Speedrite with any of above Electronic Flash Units

Kodak & Ansco 35mm Fresh BULK FILM
Tri-X, Super-XX, Plus-X, Ultra Speed, Supreme

	Reg.	SPEC.
35mmx27 ft.	$2.15	$1.60
35mmx50 ft.*	3.50	2.60
35mmx100 ft.	6.00	4.45

*Kodak Only.
Specify type—Only in lots of 3 or more.

FRESH KODAK FILM PACKS
LATE 1955-56 DATING
Tri-X, Super-XX Plus-X

	Reg.	SPEC.
2¼x3¼	$1.95	$1.42
3¼x4¼	2.60	1.89
9x12 cm.	2.70	1.97
4x5	2.95	2.15

Specify type—Only in lots of 6 or more.

KODACHROME
LATE 1955-56 DATE

	Reg.	SPECIAL Each
8mm Roll (dble)	$3.75	$2.92
8mm Mag. (dble)	4.65	3.62
16mmx100' Roll	10.40	8.12
16mm Mag.	6.95	5.41
35mmx20 exp.	3.25	2.65
35mmx36 exp.	4.95	3.87
35mm Stereo (20 exp.)	4.65	3.64
#828	1.85	1.45
Bolex 8mmx100' Roll	13.60	10.70

Specify Daylight or Indoor.
Only in Lots of 3 or more.
Kodak Processing Included

BRAND NEW, FRESH HIGH SPEED—ASA 32 EKTACHROME
LATE 1955-56 DATING
NO PROCESSING—SPECIFY DAYLIGHT OR INDOORS

	Reg.	SPEC.
35mm x 20 exp*	$1.85	$1.45
#828—Bantam*	1.00	.79
126 or 620*	1.25	.98
35mm x 100 ft.	40.00	31.25

* Only in lots of 6 or more.

Imported—Lightweight

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Brand New!
PRISM BINOCULARS
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8x30 . **$22.50** 7x50 . **$27.95**
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with revolutionary Swing-Over Head

The newest and most advanced elevating Tripod in photography. The new Swing-Over Head allows instant framing in any horizontal or vertical angle, or any intermediate point in the arc. Designed to precision standards, the new Comet has Multi-cam head, Dual Controls and Synchro-lock lifting mechanism. With double extension, three section legs, the Comet opens to 72 inches and folds to 27 inches.

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1955 models just received!

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All lenses are coated and all (except 40mm) have pre-set diaphragms.

	Reg.	SPEC.
40mm f4.5	$50.00	$24.95
85mm f2.0	124.50	82.95
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135mm f3.5	74.95	49.95
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250mm f5.5	124.50	82.95

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120 or 620 ..... 1.00
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photo tips— short cuts to better pictures

Dust Negatives Efficiently

Dust can be brushed from a negative easily, speedily, and thoroughly if the negative is inserted in the holder and holder placed in enlarger; the light from the lamphouse makes every particle of dust discernible. A short wooden dowel, wedged easily between control arm and stop bracket, as shown here, opens arm to the limit of its travel, serving to raise condenser assembly as high as possible and provide maximum space for brushing.—*Ken Murray, Colon, Michigan.*

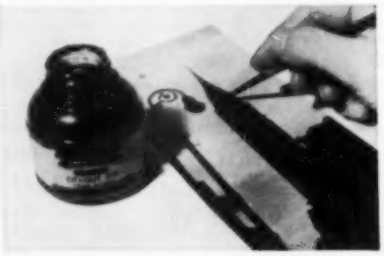
Film Grippers

Alligator clips (in the smallest size, and without handle) can be bought at radio supply stores; they make excellent substitute or supplementary clips for hanging negatives to dry. They have powerful springs and strong teeth that grip the corners of negatives safely and firmly. The small bolt, intended for attaching the clip to an electric wire, should be removed, leaving a hole by which the clips can be strung on a wire or cord. —*E. M. Hanson, Los Angeles, Calif.*

Flashing Timer

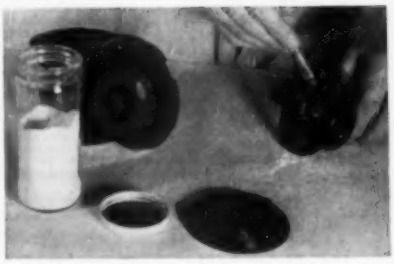
A flasher button, if used in conjunction with a shielded red light bulb, can provide an effective and accurate darkroom device for timing prints and enlargements—just count the number of flashes for the desired exposures. The button should be inserted in the lamp socket, as shown in the accompanying illustration. These flasher buttons are inexpensive; their primary use is for "blinking" illuminated signs or Christmas tree lights. —*F. A. Javor, N. Bergen, N. J.*

Retouching Glossy Prints



When used on glossy prints, some retouching materials leave a flat or semi-flat finish that stands out boldly against the surface of the print. Black opaque masking ink used for such retouching will provide a bright, glossy finish that will blend smoothly and unobtrusively with the print surface. This particular ink, sold at art supply stores, is used by artists for working on cellophane and similar smooth-surfaced materials.—*Chris Lecakes, New York, N. Y.*

For a Dry Reel



A little talcum powder, dusted lightly into the channels of the reel of a developing tank, will facilitate threading film into the reel during damp or humid weather. Application of the talc should be followed by a thorough brushing with a small brush, to remove every possible trace of the powder—the object is not to supply a coating, but to insure a completely dry surface. The reel should be taken apart before applying powder.—*Bertram Brownold, Cedarhurst, N. Y.*

Why not send in your ideas for better picture-making and darkroom aids? We will pay $10 for each photographically illustrated Tip accepted—$5 if not illustrated. Material must be original and not previously published.

Tools and Techniques

(*Continued from page 16*)

old type. The LVS shutter has stepped gears which lock each speed setting into position, whereas the older type has a continuous cam which permits inexact speed settings to be made.

5. The Schneider people consider their Xenon-C lens with interchangeable front elements for wide-angle, normal, and tele use a compromise design for use in cases where large critically sharp blow-ups are not required. Development work is continuing, to improve upon the design.

6. Special calculations are necessary in the design of lenses for use with behind-the-lens leaf-type shutters to avoid vignetting: between-the-lens shutters are ideal for fully-synchronized shutter service with optimum lens performance.

Large-Window Viewer. The Opta-Vue, a hand-held 35-mm slide viewer of unique design, was quietly introduced to the market by the Optics Manufacturing Co. of Philadelphia, last February. The avidness with which a production sample of

Fibre or glass-mounted slides fit slot of Opta-Vue—greatly enlarged, brilliant image appears in 2 x 3-inch convex window.

this unit has been reserved, borrowed, and pre-en.pted by the dozen-odd color enthusiasts associated with the POPULAR PHOTOGRAPHY staff presages widespread popularity for the item and for the competitive versions that are bound to follow. The 5½-inch-long housing has a convex 2x3-inch window at its business end—through which the illuminated slide image is viewed with both eyes under 9x (area) magnification. Either fibre or glass-mounted 2x2-inch slides are accommodated in the slide slot. A pair of C-cells powers the built-in light source. Price: $9.95.

Electronic Flash Standardization. The need for uniform terminology and measurement procedures in the electronic-flash field was highlighted again last year in a paper *Electronic Flashlamps* by Harry L. Parker, published in the September 1954 issue of the *Journal of the Society of Motion Picture and Television Engineers*. Mr. Parker, president of the American Speedlight Corp. (Ascor), has been active in this long-overdue standardization campaign both in his private capacity as an equipment manufacturer and as a member of the Committee on Standards of the Society of Photographic Engineers (SPE).

The need for a standardized definition

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Famous Ultrablitz Model 16, uses 4 flashlight batteries, or AC-Exp. guide number for Kodachrome 25 ... Only $20.95
Famous Ultrablitz Model 11lm, uses flashlight batteries or AC-Exposure guide number for Kodachrome 50 Only $49.95

Newest German Metz Strobe Flash (uses 2 batteries, priced at $6.95. Good for more than 3,500 flashes) Weight 2 lbs. Guide Number for Kodachrome 40 to 50. Price without batteries ... $29.95

PRAKTICA FX

Praktica FX 35mm Reflex camera with built-in Synchronization for Flash and Strobe, combined Reflex Finder and Eye-Level Sportsfinder. Focal Plane Shutter speed ½ to 1/500 Auto Film Transport and Shutter Cocking (Latest Model.

with Victor f2.9 ... $49.95
with Will Wetzler f2.8 ... 53.95
with Carl Zeiss Tessar Pre-Set f2.8 ... 78.50
with Carl Zeiss 50mm Biotar f2 ... 89.50
with Carl Zeiss 58mm Biotar Pre-Set ... 99.50

SOLIGOR 35mm

Single lens Reflex with coated 50mm f3.5 lens, and interchangeable bayonet lens mount. Built-in prism rangefinder with ground glass focusing, and many other fine camera features ... Only $24.95

ARGUS C-3 ACCESSORIES

Argus C-3 Reflex Housing with EXTENSION BELLOWS, converts your Argus to a Single Lens Reflex System. Parallax-free viewing for Telephoto, Close-up and Macrophotography. Incorporated focusing eye-piece, accepts all lenses and accessories ... $35.95
Extension Bellows for Argus C-3 ... $12.95
Telephoto and Wide Angle Attachment for Argus C-3 ... each $14.65
135mm f3.5 Telephoto Lens ... 39.95
Adaptor Ring, and Three Filters for Argus C-3 ... 6.95
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½" f1.9 normal ... $18.65
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16MM
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3" f1.9 telephoto ... 31.65
3" f1.5 telephoto ... 79.65

Wide angle & Telephoto FINDER for Bell & Howell 8mm ... 4.75
Wide angle & Telephoto FINDER for 16mm cameras ... 7.95

LENSES for 8mm KODAK Mag.

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65mm f1.9 ... 29.95
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Add 10% F. E. Tax

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Retina IIC, f2.8 ... $ 99.95
Retina IIIC, f2 ... 139.75
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Sixtomat $21.15 Bewi Automatic $19.95

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Coupled High Precision Lenses, Coated. Manufactured in Germany, France, and Japan. We are not permitted to advertise their famous names.

28mm – f3.5 ... $ 92.00
35mm – f2.5 ... 74.95
35mm – f3.5 ... 64.50
35mm – f4.5 ... 38.85
50mm – f1.1 ... 360.00
85mm – f2.8 ... 63.40
90mm – f4 ... $ 29.95
90mm – f2.5 ... 59.40
90mm – f1.8 ... 116.40
135mm – f2.5 ... 133.40
135mm – f4.5 ... 38.65
135mm – f3.5 ... 59.50

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Extension Bellows for Leica ... 12.95
Set of Extension Tubes ... 4.95
Metal Snake Chain with Locks ... 2.75
Metal Snake Chain without locks ... 1.75
Stereo Attachment ... 13.65
Cico Tripod ... 14.65
Leica to C Mount Adaptor ... 4.95
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Same as above only 2¼x2¼, $39.50

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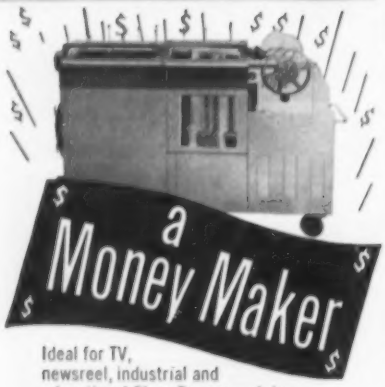

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of terms has been particularly apparent to prospective buyers of electronic flash units. Aside from price, powerpack weight, and the physical dimensions of competitive units, there are a number of performance characteristics and features which have been difficult for the customer to compare in his efforts to make an intelligent choice. These are: (1) the amount of photographically usable light emitted; (2) the evenness of distribution of light within the field covered by the camera lens; (3) the speed and action-stopping power of the flash, and (4) recycling time—the number of seconds it takes the unit's capacitors to be recharged after each flash. With electronic flash units powered by dry batteries, there is the additional complicated question of how many times the unit can be flashed before the batteries have to be replaced: for dry-battery life varies considerably depending on whether the unit is flashed at frequent intervals over a short period of time (candid wedding and party photography, for example) or used occasionally at regular or irregular intervals. All but the dry-battery life factor were covered in the Parker paper, which was based on the results of a questionnaire submitted to a group of leading scientists and manufacturers in the electronic-flash industry in behalf of the SPE standards committee. (SPE plans eventually to submit the survey results to the American Standards Association for their consideration.)

Light Output. The majority opinion expressed in the SPE questionnaire held that watt-seconds, which are a measure of electrical energy storage (or input), should be discarded as a means of rating the strength of electronic flash units. A light-output rating was preferred—beam candlepower seconds being suggested as a convenient objective measurement. This is the amount of light emitted from a single flash measured on the axis of the flashtube reflector.

Light Distribution. The angle of coverage, or beam spread, is the number of degrees of arc covered by the flashtube-reflector combination. In the original SPE survey, the majority opinion was that this was the field over which the light intensity doesn't drop below ⅓ that on the reflector axis. In view of the increased use of color film with its limited exposure latitude, current opinion is that the angle of coverage should be limited by the points where the light intensity drops to ½ the axis intensity. The recommended measuring method consists of mounting the test reflector containing the flashtube on a pivot marked with a compass, with the light meter in a fixed position. The lamp is flashed and the reflector successively rotated to the point where its measured light output is ½ as great as on the axis. The particular off-axis angle represents one-half the angle of coverage. Multiplying by 2 gives us the reflector's beam spread with the particular flashtube mounted in it. This angle mustn't be less than the acceptance angle of the lens on the camera, lest hot-spotting occur when photographs are exposed only by a single light source beside the camera. Lenses of "normal" focal length have acceptance angles ranging from 42 to 56 degrees of arc; telephoto and long-focus lenses have much smaller angles, whereas wide-angle lenses cover as much as 90 degrees. Naturally, a light source that is always used off the camera need only have a beam spread sufficient to cover the principal subject it is intended to illuminate.

Flash Speed. The duration of the flash or effective flashing time has a bearing not only on the action-stopping abilities of the flash unit but also on reciprocity failure (loss of emulsion speed and contrast) which increases as the speed of the flash increases. The SPE survey consensus defines flash duration as the time during which the flash intensity remains at ⅓ its peak intensity or higher. The duration can easily be measured from time-intensity graphs for the respective flash units as published by the manufacturers.

Recycling Time. This was defined by the majority of the SPE survey respondents as the time it takes the capacitors of the electronic flash unit to build up to 90 percent of their maximum voltage after the unit has once been flashed. If the unit is flashed before the 90 percent build-up point, the light output is substantially lower than at full capacitor charge. A-c units and storage-battery-powered units generally have a constant recycling time. Dry battery units have a greater tendency to suffer from temporary exhaustion between flashes which causes a gradual stretching out of the recycling time. However, dry-battery units with heavier batteries are much slower to fatigue.

What is important about the Parker paper is that it represents one of the most recent attempts to substitute some kind of uniformity for chaos, even though some of the definitions may be incomplete or may even fail to come to grips with the actual working problem in their present form. Sooner or later, the American Standards Association must solve the electronic-flash problem. Until then, surveys like the SPE project and papers like Parker's with sufficient publicity behind them can not only help curb unscrupulous competition but also hasten the formulation and adoption of valid standards.

Odds & Ends. A method for adding small quantities of Phenidone to a developer containing metol, sodium sulfite, and sufficient alkali to peg the pH between 8 and 9 for the purpose of increasing considerably the speed of the resulting fine-grain developer is described in British patent #723,286 granted February 2, 1955, to A. J. Axford and J. D. Kendall and assigned to Ilford Ltd.

. . . And now liquids can be used in a simpler, faster, and better-controlled developing process than that provided by powders for xerographic plates, according to K. A. Metcalfe writing on *Liquid Developers for Xerography* in the February 1955 issue of the *Journal of Scientific Instruments*. Such developers consist of particles which can take on a charge when dispersed in a liquid, Monolite Yellow in gasoline being specified in the single example the article mentions.—▶

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8x10	DW Cr. Wh. Lustre	#1, 2, 3, 4	100 sh.	4.25
8x10	DW Brov. Vel.	#1, 2, 3, 4	125 sh.	4.95
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8x10	Ad-type	#1, 2, 3, 4	250 sh.	3.50
10x10	SWGL	#2, 3, 4	100 sh.	2.50
10x10	DWSGL	#2, 3	250 sh.	4.75
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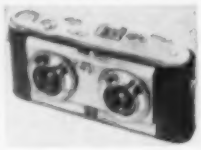
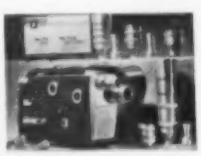


REALIST 45 is introduced by Realist Inc., 315 W. Court St., Milwaukee, Wis. This 35-mm stereo camera features matched, color-corrected, 35-mm *f*/3.5 lenses; triggered film advance and shutter cocking; apertures to *f*/16; four shutter speeds from 1/25 to 1/200 sec; fully synchronized for flash; exposure chart for all lighting conditions; automatic resetting exposure counter; large-image viewfinder eyepiece; and lever for intentional double exposure. Price, incl. carrying strap, $88.50.

EASTMAN KODAK CO., Rochester 4, N. Y. announces price reductions on the following cameras: Signet 35 is now $75, Bantam RF is now $56.75, and the Town and Country outfit is now priced at $72.45.

MINOLTA A is introduced by the FR Corp., 951 Brook Ave., New York 51, N. Y. This 35-mm camera features a built-in superimposed-image rangefinder combined with a large, brilliant image viewfinder; focusing by a knurled tube projecting from the lens barrel; single-stroke lever-actuated film transport also cocks shutter; intentional double exposure possible; behind-the-lens shutter with speeds from ½ to 1/200 sec; and MX synchronization. Price, with a four-element 45-mm Rokkor *f*/3.5 lens, is $49.95. Accessories include drop-front leather case; lens shade; yellow, haze, and Kodachrome filters.

PERIFLEX, a 35-mm camera, features through-the-lens focusing by means of a built-in periscope; sprocketless loading; built-in flash synchronization; shutter speeds to 1/1000 sec; body shutter release; double-exposure prevention; built-in take-up drum; and acceptance of Leica lenses interchangeably. Distributed by Minifilm Camera Corp., 1190 Ave. of the Americas, New York 36, N. Y., the price is $67.50, with an *f*/3.5 lens.



CINE-KODAK K-100 is added to the movie-camera line of Eastman Kodak Co., Rochester 4, N. Y. A 16-mm model, it loads with 50- or 100-ft rolls of single or double-perforated film. Among features are: a pre-stressed motor capable of exposing up to 40 ft of film with one winding; rear shutter release; full size 1-for-1 telescopic viewfinder; film-footage indicator; spring motor dial showing amount of footage left without rewinding; operation at speeds from 16 to 64 frames per sec; and large, speed control governor. Prices are $269 with a 25-mm Ektar *f*/1.9 lens and $369 with a 25-mm Ektar *f*/1.4. A full line of auxiliary lenses from 15-mm (wide-angle) to 152-mm (6x telephoto) is available for both models.

KODAK RETINA IIc is announced by Eastman Kodak Co. Rochester 4, N. Y., as a companion model to the recently introduced Retina IIIc. Similar in appearance and design, this new 35-mm camera is supplied with a six-element 50-mm Retina Xenon C *f*/2.8 lens (IIIc comes with an *f*/2 lens) and does not have the built-in exposure meter. Interchangeability of long-focus and wide-angle lenses remains the same. Other features are: Synchro Compur shutter with ten speeds from one to 1/500 sec; MX synchronization; self-timer; and one-window range-viewfinder. Price is $135. Components for lens system are priced at $82.50 (80-mm long-focus lens) and $62.50 (35-mm wide-angle lens).

SUPER MEMAR, a 35-mm camera has been added to the Super line of Ansco, Binghamton, N. Y. It features an *f*/3.5 Agfa Apotar color corrected lens with helical focusing from 42-in; click-stop diaphragm calibrated to *f*/16; Prontor SVS shutter with eight speeds to 1/200 sec & B; one-window range- and viewfinder; thumb-lever film transport sets shutter and counts exposure; depth-of-field scale; film-type indicator; controls visible from top of the camera; and an all-metal body. Price is $69.50; cowhide case with built-in filter compartment, $6.95; flashing unit, $7.95.

GRAPHIC 35 is the newest camera of Graflex, Inc., Rochester, N. Y. In operating position respective index fingers cover push-type focusing buttons, which work in unison to permit quick focusing and a conveniently placed release lever permits tripping of shutter without change of hand position. A new color-coding system indicates proper exposures for color flash photography. The exposure counter shows how many frames are left rather than how many have been exposed. The lens is a 50-mm Graflex *f*/3.5, fully corrected for color. Price is $89.50 with case and flash.

PHOTO AIDS for Retina IIc and IIIc cameras are announced by Eastman Kodak Co., Rochester 4, N. Y. Close-Up Kit model B, has four fixed-field sizes covering areas from 4x6 to 1½x2 in. Microscope Adapter Kit model B makes photomicrographs ⅛ of the magnication effected by the microscope optics and attaches to most microscopes. Table-Top Camera Stand Kit model B provides a support for vertical, small-object picture taking from a few inches to a foot above the base. Camera Platform Model B provides a tripod socket in the center of the camera base and clearance for operating the film-advance lever. Prices are, respectively, $43.50, $59.50, $34.50, and $5.75.

MINOLTA AUTO-CORD is a 2¼x2¼ twin-lens reflex camera distributed by the FR Corp., 951 Brook Ave., New York 51, N. Y. Some features are: automatic film advance with intentional double exposure; focusing by means of a lever beneath the taking lens; film loading from top to bottom; 75-mm four-element *f*/3.5 taking lens and 75-mm *f*/3.2 viewing lens; shutter speeds from 1 to 1/400 sec; and MX synchronization. Accessories include drop-front leather case; square lens shade; yellow and haze filters; two close-up lens sets with parallax correction; and a paradjuster mechanism for use with proxar-type close-up lenses.

BOLSEY JUBILEE, a 35-mm camera, features balanced focusing; daylight and flash Set-O-Matic; equidistant diaphragm system (diaphragm lever travels same distance between each *f* stop); X synchronization at all speeds; split-image rangefinder;

screw-in flashgun for bounce light without removing unit from camera; 45-mm Bolsey-Steinheil f/2.8 lens; and Gauthier shutter. A product of Bolsey Corp. of America, 118 E. 25th St., New York 10, N. Y., the price is $79.50, incl. flashgun and leather case.

RIGHT-ANGLE VIEWFINDER for the Zeiss Ikon Contaflex camera is announced by Carl Zeiss, Inc., 485 Fifth Ave., New York. The new device permits use of the camera at right angles to the normal position, for candid and other photography, such as photographing small specimens, making copies, etc., with the camera in horizontal position. The viewfinder is attached by screwing it into the camera's viewfinder eyepiece. Price is $22.

LENSES & ACCESSORIES

NIKKOR 250-mm telephoto lens, for use with all Nikon cameras, gives 5x magnification. Focusing and viewing are done by means of a reflex housing, with an eyepiece magnifier for fine focusing. A rubber eyecup excludes external light. Other features are: f-stops to f-32; focusing from 10 ft; 90-degree rotation for horizontal or vertical pictures; bayonet mount; and a screw-in lenshade filter-holder accepting Series IX filters. Price, incl. cable release, $324. Additional information available from J. C. Abbott, Nikon Inc., 277 5th Ave., New York 16, N. Y.

NOMINAR F&B 1-in. f/0.95 lens in 16-mm "C" mount, said to be the fastest lens offered for general use, is an import of Florman & Babb, 70 W. 45th St., New York 36. Corrections are said to be of a high order and the lens, faster by 1½ stops than f/1.4, is said to correctly expose Tri-X film with only three foot candles of light. Price is $174.90, incl. F.E.T.

CARL ZEISS SONNAR f/3.5 lens, for the Hasselblad 1000F reflex camera, focuses from infinity to 40-in. from film, producing an image of almost 2x. It also features a built-in preset diaphragm with normal and in-between click stops and an engraved depth-of-field scale. Price, with front and rear lens caps, $279.50. Available at Hasselblad dealers or write Willoughbys-Wholesale, 110 W. 32nd St., New York 1, N. Y.

APRO-REPRO lenses are announced by Karl Heitz, Inc., 150 W. 54th St., New York 19, N. Y. Fully corrected for primary colors, they may be used as objectives for view cameras as well as for reproduction work. Field of view is 54 degrees, with ratio of enlargement between 1:5 and 5:1. The 210-mm f/6.6 lens is priced at $147; the 300-mm f/9 and 360-mm f/11 are $139 each.

4-6-19 is the name of a close-up, fixed-focus unit which when used with a camera with Mighty Lite Speedlight and a close-up ring accessory, is claimed to yield shadowless flash pictures at distances of 4, 6, and 19 in. The unit, consisting of a sliding lens carrier with three built-in supplementary lenses, 10, 6, and 2 diopters; 4-, 6-, and 19-in. measuring rods; a body holding close-up ring and legs; and a bottom support, is priced at $49.50. Manufacturer is Speedlight Center, 128 W. 32nd St., New York 1, N. Y.

KALIMAR LENSES (telephoto and wide-angle) for the Contax-S and D, Praktica, Pentacon, Exakta, Leica, and similar cameras, are described in a brochure available from Arel, Inc., 4916 Shaw Ave., St. Louis 10, Mo.

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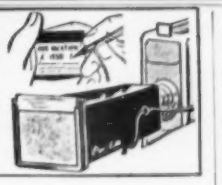

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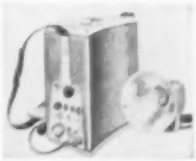
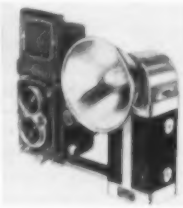
nounces a new lens for reflex housing attachments. It is a 135-mm f/3.8 telephoto in a short barrel, and focuses from infinity down to 1:1. The lens is made by Japan's Sun Optical Co. and is priced at $49.95.

FLASH



ASCOR LIGHT 405, a high-power portable speedlight, operates on an acid-free nickel-cadmium battery or a-c. Among features are guide numbers of 80 for color and 400 for black-and-white films; light output of 7500 beam-candlepower seconds; 5-in. reflector with a 70-degree angle of coverage; flash duration of 1/2500 sec; recycling time of 8 sec; built-in charger with battery gives 15 yr guarantee of battery life. Price, $289. Lead-acid battery units available on special order. Ascor nickel-cadmium batteries (guaranteed for 10 yr), directly interchangeable with lead-acid batteries are also available. Three-cell BN-106, 4.2 v, replacing lead-acid battery No. 458, is priced at $22; five-cell AN-102, 6.3 v, replacing lead-acid battery No. 658, is $36. More information from American Speedlight Corp., 63-01 Metropolitan Ave., Middle Village 79, New York, N. Y.

KALART BC-400 FLASH UNIT Model 442 was especially designed by The Kalart Company, Plainville, Conn., for modern cameras with an accessory mounting shoe on top, such as Voigtlander, Ansco, and Leica models. It includes a mechanical mount that provides rigid attachment to the camera top, and a connecting cord to fit the flash terminal. The unit has a Lucite safety shield whose opening automatically ejects burnt flashbulbs, and the shield doubles as an automatic circuit breaker that prevents accidental firing when the new bulb is seated. Price is $14.95, less battery.



SUN LITE 500 is a self-contained, all-at-the-camera speedlight. One Eveready battery contained in the gun itself is claimed to give more than 500 full-peak flashes before a replacement is necessary. Guide numbers are 200 for Tri-X, 40-50 for Ektachrome, and 25-30 for Kodachrome. Price, incl. shutter cord and bracket, $49.50. A-c operation is possible by replacing with a small a-c adapter. Sun Lite III is a heavy-duty, high-powered a-c electronic flash unit for color and professional work. Using a standard Sun-Lite II flashhead, guide numbers are 80-100 for Kodachrome; 550 for Tri-X and Royal Pan. Price, $139.50, includes 15-ft power cord, bracket, Sunflector, and shutter cord. More information available from Hershey Mfg. Co., 2425 W. Lawrence Ave., Chicago 25, Ill.

PROJECTION & VIEWING EQUIPMENT

GA-20 is the trade name for a new automatic hand-held stereo viewer for 35-mm slides, a product of Geiss-America, 6424 N. Western Ave., Chicago 45. GA-20 holds 20 stereo slides, each in a special mount; is gravity fed from a magazine. Its lamp operates either from battery or a-c, and maximum sharpness for any eyesight is assured by interocular adjustment and a knob-focusing system. Price of the device is $25.

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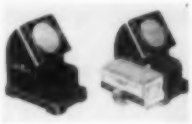
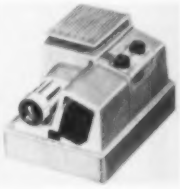
DUAL PURPOSE TABLE VIEWER made by Airequipt Mfg. Co., New Rochelle, N. Y., has been increased in size, with coincident price reduction. The new price is $10.50, and the new price of viewer in combination with Airequipt Automatic Slide Changer, including one magazine for 36 slides, is $24.50.



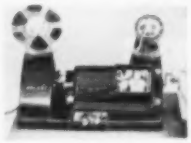
DA-LITE SCREENS are available in three new models featuring White Magic glass-beaded fabric, claimed to give improved color projection. All surfaces are 30x40 in. The Challenger and Versatol models ($24.75 and $18.40 respectively) feature push-button opening. The Comet, with gooseneck setting-up is $13.75. Manufacturer is Da-Lite Screen Co., Inc., 2711 N. Pulaski Rd., Chicago 39, Ill.

REVERE 553, an auto-magazine 35-mm slide projector, features a two-position setting for manual or automatic-index operation; 5-in. color-corrected *f*/3.5 lens; 300-w illumination; blower cooling; 15-degree tunnel tilt to prevent slide spillage; fingertip tilt control; case with built-in screen. Price, complete, is $69.50. Model 555, similar to above but with 500-w illumination, is $79.50. Manufacturer is Revere Camera Co., 320 E. 21st St., Chicago 16, Ill.



VICTOR ANIMATOGRAPH CORP., Davenport, Iowa, announces new features on the Classmate 4, Assembly 10, and Sovereign 25 16-mm movie projectors. These features are: one-spot filling oil reservoir; compensating film shoes adjusting to varying film thicknesses; sapphire-tipped pawls; Mark II double interruption shutter, claimed to give 56% more light on the screen; and an air-conditioned lamp housing and film gate.

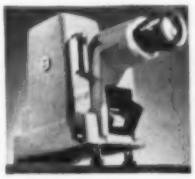
KALART EDITOR VIEWER accepts all 8-mm reels up to and including 400-ft capacity and folds flat for storage. Some features are: 12x magnification on a ground-glass screen; built-in splicer and film cement; single one-direction handle for advance and rewind; and bright illumination for normal room lighting. Price, including condenser lens, rotating prism, and flat-field projection lens, is $39.50. Manufacturer is The Kalart Co., Inc., Plainville, Conn.



PANASCOPE, a dimensional viewing screen for movies and 35-mm slides has been improved upon, claims the Optics Mfg. Corp., 2109 E. Thompson St., Philadelphia, Pa. Viewable from either side, surface is 12x16 in. and can be set up on a table, tripod, or stand. Price, incl. carrying case, $29.50. More details from the manufacturer.

AUTOMATIC is the name of the latest addition to the projector line of the Society for Visual Education, Inc., 1345 W. Diversey Pkwy., Chicago 14, Ill. Taking 2x2 slides, it features a 5-in. color-corrected lens; a 300-watt lamp; blower cooling; finger-tip elevation; an Airequipt automatic slide changer; and is all-metal constructed with a die-cast housing. Price, incl. F.E.T. and one 36-slide magazine, is $54.95.

KODASLIDE SIGNET 300, Model A, is a companion to the similar but more expensive Signet 500 slide projector, manufactured by Eastman Kodak Co., Rochester 4, N. Y. Among feature are: slide insertion from the top, restacking automatically at the



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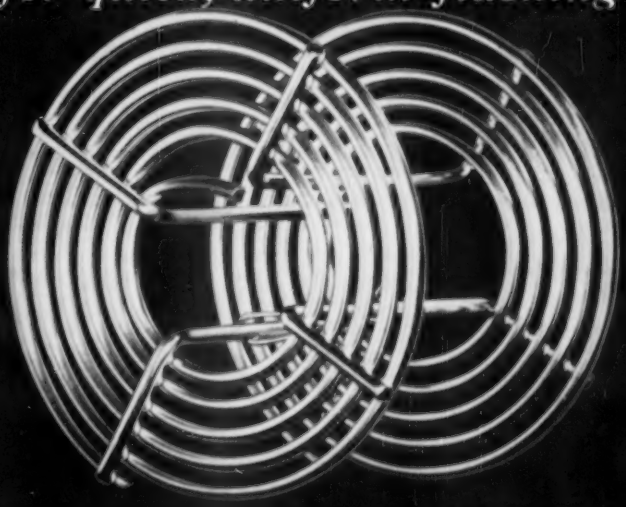

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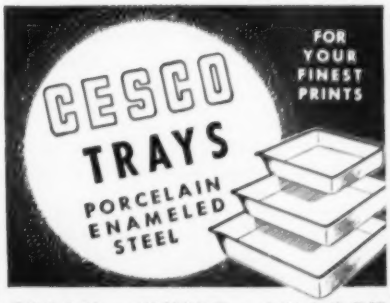

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NO LIMIT on the number of entries from any contestant.

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RULES OF THE CONTEST

1 The Contest is open to all persons, except employees of Popular PHOTOGRAPHY, Ziff-Davis Publishing Company, and their families. CONTEST OPENS MARCH 8 and CLOSES JULY 1, 1955.

2 **An entry fee of $1.00 must accompany each package** of pictures submitted. There is no limit on the number of pictures included in each package, or the number of packages submitted, but each package must contain its own entry fee. Entry fee may be paid by check or money order. Postage stamps not acceptable for entry fee.

3 There will be a Black-and-White Division and a Color Division; each will be judged separately. Any number of black-and-white prints, color prints, or color transparencies may be submitted by any entrant provided each package is accompanied by an entry fee of $1.00, in accordance with Rule 2, and in conformity with the following regulations: It is advisable to submit color prints and/or transparencies separately from black-and-white entries. There are no restrictions as to subject matter or size in either Division, although 5x7 or larger prints are preferred.

4 Prints may be either mounted or unmounted; this is optional with entrants. Be sure to print name and address on mounts of both black-and-white prints and color transparencies.

5 Pictures which have been published in, or accepted for publication or are under consideration by any photographic magazine other than Popular PHOTOGRAPHY or PHOTOGRAPHY ANNUAL are not eligible. Publication in any other medium does not make prints or color transparencies ineligible.

6 Each print or transparency must have secured to it a filled-in entry blank as provided here, or facsimile thereof. Please print or typewrite the information requested on the blank. Additional entry blanks are obtainable from photo dealers and finishers, or direct from the Contest Editor of Popular PHOTOGRAPHY if request is accompanied by a self-addressed and stamped envelope.

7 All prints and transparencies will be held for judging after July 1, 1955, and no entries will be returned until after announcement of the winners has been published in the December, 1955, issue of Popular PHOTOGRAPHY. Pictures which did not win prizes will then be returned as quickly as possible, provided that self-addressed and stamped envelope, or addressed label and postage were contained in the same package in which each lot of entries was sent. DO NOT SEND POSTAGE

bottom in proper sequence; Lumenized con-

SEPARATELY for return. The Contest Editor cannot enter into correspondence of any kind regarding entries.

8 Prize-winning pictures, including all reproduction and promotional rights, become the exclusive property of Popular PHOTOGRAPHY. All entrants who win prizes will be required to furnish original negatives before prizes are given, as well as model releases where necessary. All prize-winning negatives become the exclusive property of Popular PHOTOGRAPHY.

9 The contest will be judged by the editors of Popular PHOTOGRAPHY under the chairmanship of Mr. B. G. Davis, President, Ziff-Davis Publishing Co. Decision of the judges is final.

10 Address all entries to Contest Editor, Popular PHOTOGRAPHY, 366 Madison Avenue, New York 17, N. Y. Final entries must be postmarked not later than midnight of July 1, 1955. Prize winners will be announced in the December, 1955, issue of Popular PHOTOGRAPHY. While exercising the utmost care in handling entries, Popular PHOTOGRAPHY assumes no responsibility for loss of or damage to Contest entries nor for loss of entry fees.

11 Prizes will be United States Savings Bonds, Series E. Values of prizes listed are maturity values of the Bonds. Prize winners who are not United States citizens will receive, in lieu of Bonds, a check in the amount of the purchase price of the Bond award.

12 FOREIGN ENTRANTS: The foregoing rules apply to all entries, except that prints and transparencies submitted by persons residing in foreign countries are eligible for consideration only if accompanied by an amount sufficient to cover entry fee and return postage. This can be sent in the form of Postal Money Order, Bank Draft, or International Reply Coupons (in sufficient number). These Coupons are sold by most post offices throughout the Universal Postal Union and when properly rubber-stamped by the issuing post office each Coupon is exchangeable (as indicated in several languages on each Coupon) for a "postage stamp or postage stamps representing the amount of postage for an ordinary single-rate letter destined for a foreign country." Thus, each International Reply Coupon can be exchanged in the United States for postage in the amount that would be used for a single-rate letter (not air mail) to the country where the Coupon is purchased.

●

USE THIS ENTRY BLANK

Each one of your entries must be accompanied by a filled-in entry blank provided here, or a facsimile of it. Your photo dealer or your finisher has additional blanks on hand should you need them, or you can obtain entry blanks from the Contest Editor of Popular PHOTOGRAPHY. Your request for more blanks should be accompanied by a self-addressed stamped envelope.

●

**Values given are maturity values of the bonds. Each prize will be accompanied by a certificate of award suitable for framing. This certificate is printed on fine parchment stock and will bear the hand-lettered name of the winner.*

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1st $2,000 U.S. Savings Bond, plus Trophy	1st $2,000 U.S. Savings Bond, plus Trophy	$4,000
2nd $1,000 U.S. Savings Bond, plus Trophy	2nd $1,000 U.S. Savings Bond, plus Trophy	$2,000
3rd $750 U.S. Savings Bond, plus Trophy	3rd $750 U.S. Savings Bond, plus Trophy	$1,500
4th $500 U.S. Savings Bond, plus Plaque	4th $500 U.S. Savings Bond, plus Plaque	$1,000
5th $250 U.S. Savings Bond, plus Plaque	5th $250 U.S. Savings Bond, plus Plaque	$500
50 Prizes, U.S. Savings Bonds, each $100	50 Prizes, U.S. Savings Bonds, each $100	$10,000
70 Prizes, U.S. Savings Bonds, each $50		$3,500
100 Prizes, U.S. Savings Bonds each $25		$2,500
	GRAND TOTAL	$25,000

In the event of a tie, duplicate prizes will be awarded.

FINAL CLOSING DATE: JULY 1, 1955

USE THIS ENTRY BLANK (PLEASE PRINT) 1955

Contest Editor, Popular PHOTOGRAPHY
366 Madison Avenue, New York 17, N. Y.

Please enter the enclosed picture in the Popular PHOTOGRAPHY Picture Contest for 1955. It is submitted in accordance with the rules, which I have read.

Name.....

Street.....

Town.....Zone.....State.....

Picture Title.....Have You a Model Release?.....

Where Made.....

Camera Used.....Lens.....

Exposure: Lens stop.....Shutter Speed.....

Film Used.....Filter.....

Lighting.....Paper.....

Published before?.....Where?.....

CAUTION: Be sure to include your entry fee of $1.00 in the package containing your entries (See Rules 2 and 3). If you want your pictures returned in the event you do not win a prize, be sure to include adequate return postage.

PRIZE WINNERS ANNOUNCED: DECEMBER, 1955, ISSUE

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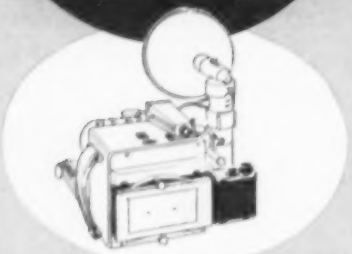

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bottom in proper sequence; Lumenized condenser-lens system coupled to a 300-watt lamp; blower cooling; individual spring-loaded front legs for elevation up to 12 degrees; 105-120 volt a-c operation; 12-ft cord; and can accept an Airequipt slide changer or a single-frame stereo adapter. Price is $59.50; carrying case with space for accessories, $19.75.

OPTA-VUE is a new hand viewer made by Optics Mfg. Co., 3109 E. Thompson St., Philadelphia. It is said to produce an extremely bright 9x magnification of 35-mm slides through an "Optacor" dual-lens system. Price, with batteries, is $9.95.

KODASCOPE PAGEANT series of 16-mm sound and silent projectors is described in a pamphlet now available from Eastman Kodak Co., Dept. 2, Rochester, N. Y. Descriptions are detailed and prices included.

SOUND PROJECTION EQUIPMENT

REVERE T-11 HIGH FIDELITY Tape Recorder was designed by Revere Camera Co. "to provide the ultimate in sound recording and reproduction." It has a frequency response of 40 to 16,000 and a monitor amplifier with 2½-watt output. Wow and flutter are said to be less than 0.2%. Other patented features include automatic head demagnetization and amplifier-acoustic system co-ordination to balance highs and lows. Price is $264.50, incl. cord and plug.

SHAMROCK #300 is the newest Ferro-Sheen tape made by ORRadio Ind., Inc., Opelika, Alabama. It is recommended by the maker for applications requiring abnormal strength and for uses under all conditions of extreme temperature or humidity. Prices: 600 ft on plastic reel, $2.40; 1,200 ft, same reel, $3.80; 2,400 ft on metal reel, $8.60.

FILM AND PAPER

ANSCOCHROME is the new high-speed color film released by Ansco, Binghamton, N. Y. Presently available in daylight type only, it is claimed to have the advantages of latitude and color-curve conformity over the discontinued Ansco Color film, making possible color transparencies to owners of box and simplified folding cameras. Processing chemicals remain the same as those for Ansco Color but a reduction of time (about 25%) is called for in the first developer. Sizes and prices are, 20 exp. 35-mm cartridge, $1.85; 35-mm Easy Loader (no bulk loader necessary) consisting of eight 20-exp. lengths, $9.95; 8-exp. 620 and 120 rolls (2¼x3¼), $1.25; 8-exp. 828 roll, $1. Processing charges, including mounting, are $1.15 for 35-mm; $2.15 for stereo; 90 cents for 828; and $1 for 620 and 120 roll, unmounted, at Ansco dealers.

TRI-X availability in additional roll-film and film-pack sizes is announced by Eastman Kodak Co., Rochester 4, N. Y. New sizes and prices are: 8-exp. 828, 45 cents; 20-exp. 35-mm cartridge, 85 cents; TX 410, 27½ ft, TX 401, 50 ft, and TX 402, 100 ft (all 35-mm rolls) are $2.15, $3.50, and $6, respectively. Film packs are TX 520, 2¼x3¼, $1.95; TX 518, 3¼x4¼, $2.60; TX 541, 3½x4¾, $2.70. In addition, 35- and 70-mm 100 and 200 ft rolls are available perforated or unperforated.

ALL-WEATHER PAN, a new Ansco film, employs new color sensitizers for full color sensitivity similar to other Ansco panchromatic films. Its exposure index is 64 for daylight and 50 for tungsten. Exposure latitude is unusually wide and the film is said to eliminate chalky highlights due to overexposure. Wrapping is moisture-proof and a complete instruction sheet is included with each roll. Prices are: 120, 45 cents; 620, 45 cents; 127, 40 cents; 616, 55 cents. For 3-roll Economy Paks: 120, $1.20; 620, $1.20; 127, $1.05. 616 is not available in such form.

DU PONT PHOTOGRAPHIC PAPERS, a 55-page booklet from Du Pont, Wilmington, Del., is available at most camera stores. This revised, illustrated edition contains

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sections on photographic history, fundamental processing instructions, paper selection, print-defect chart, and data on Du Pont products. Price is 35 cents.

FILTERS

GELATATE LIGHT CORRECTOR Discs are available in book form, removable with tweezers that also hold the book closed. Including a Gelatate holder, sizes and prices are, #2 (V), $8.95 and #3 (VI), $12.95. More information from Harrison & Harrison, 6363 Santa Monica Blvd., Hollywood 38, Cal.

EKTACHROME FILTERS, 82B, 82C, and 85C are metal mounted and engraved as to designation. For more information, write Spiratone, Inc., 49 W. 27th St., New York 1, N. Y. Prices of each and sizes are, respectively: $1.39, Series V; $1.59, Series VI; $2.98, Series VII.

PHOTAR FILTERS made by Tiffen Mark Co., 71 Jane St., Roslyn Hts., Long Island, N. Y., now include 82B, 82C, 85C, MF557, and MF556. 82B is 100 K cooler than 82A; 82C is 200 K cooler, and 85C is a conversion type for using Type F films in daylight. MF557 is Vitessa Bayonet mounted, available in all colors, and MF556 designates Kindar stereo-mounted filters in matched pairs, in all colors. The last-named type cost $5.35 per pair; the other single filters cost $4.25 each.

WALZ CUSTOM FILTERS for color and black-and-white photography are announced by U. S. Photo Supply Co., 1204 G St. N.W., Washington 5, D. C. Price list and information available.

PICTORIAL FILTERS are announced by Eastman Kodak Co., Rochester 4, N. Y. Made of solid optical glass, they are intended for use with Kodak Combination Lens Attachments. Descriptions and prices are: Series IV (yellow) for contrast, some haze penetration, and for use with pan and ortho films only, $1.45; Series VI (red) for extreme contrast, better haze penetration, and for use with pan and infrared films only, $1.95; Series V (green) for natural reproduction of blossoms and foliage, outdoor portraits against the sky, and limited to use with pan films only, $1.65.

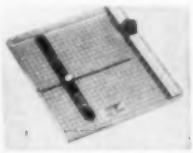
CLOUD FILTERS and close-up attachments set in slip-on mounts are available in 25.5-, 28.5-, 31.5-mm sizes. Price, $1.80 each. Complete data available from manufacturer, Enteco Products, 610 Kosciusko St., Brooklyn 21, N. Y.

FILTER MAGIC, a booklet describing filters and their uses for Argus cameras, is available without charge from the Sales Service Div., Argus Cameras, Inc., Ann Arbor, Mich.

SCREW-IN FILTERS for Ektachrome F film are announced by Tiffen Marketing Co., 71 Jane St., Rosyln Heights, L. I., N. Y. They are T-coated and have rims colored same as the filter for easy identification. Available in types 82A, 82B, 82C, and 85C for use on Contessa, Contaflex and Retina cameras, prices are $4.25 each. Catalog of filters and accessories available.

BAYONET-MOUNT filters for Rollei and similar cameras are T-coated and have colored rims for easy identification. Descriptive price catalog available from Tiffen Marketing Co., 71 Jane St., Roslyn Heights, L. I., N. Y.

MISCELLANEOUS



SAFE-T PAPER CUTTER features a cutting edge which is a concealed injector-type razor blade. A see-through cutting channel of steel reinforced plastic permits cutting on premarked guide lines while a plastic angle-cutting bar provides adjustment to any size or angle. Available at photographic, art, and office-supply stores or direct from Hectographia Corp., 110 W. 17th St., New York 11, N. Y. Sizes and prices are: 12-in, $10.95; 15-in, $16; 18-in, $25; 24-in, $30.

NEODYN BLUE and NEODYN RED developers are introduced by Photo Import Assoc., Box 1302, Winter Park, Fla. Developed from formulas by the German authority Willi Beutler, these developers are claimed to give astonishing definition and resolution, especially where maximum film speed is required. Neodyn Blue is a soft-working compensating developer designed for use with thin-emulsion films such as

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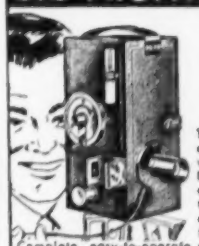
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speed makes this film adaptable for use in any camera
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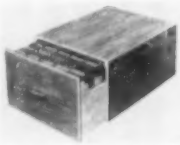
Adox KB 14 and KB 17, or Ilford Pan F. Neodyn Red is a more-contrasty developer, to be used with faster-emulsion films. Packaged five vials to a box, each vial is good for two 36-exp. rolls of 35-mm films or equivalent. Price is $2 a box, for either developer.

8-MM KODASCOPE metal storage cans and reels are available again, announces Eastman Kodak Co., Rochester, N. Y. The 200- and 400-ft reel cans are 50 and 80 cents, respectively, without reels and $1.15 and $1.75 each with reels. Kodascope Transparent cans will remain available.

BROWN-FORMAN INDUSTRIES, Louisville, Ky., announce four new chemical products: No. 40 Wetting Agent, No. 80 One-Minute Film Developer, No. 84 One-Minute Paper Developer, and No. 90 One-Minute Fixer, for film, plates, and paper. Prices are: No. 40, ½ pt to make 30 gal, 75 cents; No. 80, same quantity to make 1 qt, $1.15; No. 84, same quantity to make 1 qt, $1.15, and No. 90, ½ pt to make 1 qt, 90 cents. Ask your dealer for a bulletin describing the new products and giving working instructions.



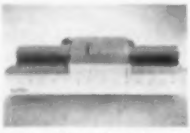
MAGAZINE SLIDE FILE SM-25 has been added to the line of files made by Nega-File Co., Box 501, Easton, Pa. It is built of hardwood and holds 25 Airequipt, TDC, or LaBelle magazines or any combination thereof, and contains partitions to keep magazines upright. Heavy brass corners hold units together when stacked. Price is $19.95.

PLASTIC FILE BOXES holding 22 transparencies in cardboard mounts are free of charge with all 35-mm and 828 color film processed by Pavelle Color Inc., 533 W. 57th St., New York 19, N. Y. Stacking trays holding 12 file boxes are available at 59 cents each.

BILORET DE-LUXE TRIPOD is announced by S. E. Laszlo, 25 Lafayette St., Brooklyn 1, N. Y. It has a circular head of brass, a tilt top with reversible screw, substantial brass legs, and a black, hard-rubber finish when closed. Weight is 20 oz and closed length is 10 inches. Price of the tripod is $16.50 and a genuine-leather case costs $2.95. Write Laszlo for a catalog of the company's complete line.

BRUNEAU TRIPOD (professional type) is all-aluminum; folds to 25-in.; extends to 62-in., and to 7 ft. with extension tube. Other features are one-knob-control pneumatic elevation; full-circle adjustment from vertical to horizontal positions; individual leg adjustment; weighs 8 lbs. Price is $70; brochure available from Fox Products Co., 4720 N. 18th St., Philadelphia 18, Pa.

ALUMINUM CASES for camera and accessories are a product of Halliburton, Inc., Los Angeles 58, Calif. Made of aluminum alloy, they feature a rubber interlocking seal; felt-lined compartments; movable dividers; separate zippered bag; and carrying clips on the two smaller bags. Sizes and prices are, 9x12x5, $49.50; 9x16x7¾, $59.50; 13x18x6, $69.50.



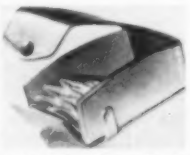
3-D SLIDE BAR is available in a new model incorporating a scale claimed to simplify stereo close-up work. Divided into two parts, one scale is calibrated in mm for parallax control and shift over alignment. The other is calibrated on each side of a center for direct reading in close-ups. Available from dealers or direct from Kentech, P.O. Box 24152, Los Angeles 24, Calif. Price is $24.95.

OFFSET POSITIVE VIEWFINDERS for 16-mm movie lenses lacking standard viewfinders are now available from Par Products Corp., 926 N. Citrus Ave., Hollywood 38, California. They permit use of large-diameter telephoto lenses on Par four-lens turrets and also are usable on B & H cameras with positive viewfinder systems, and the Auricon Super 1200. Other viewfinders of the "in-line" type are available for lenses of many different focal lengths, from 9.5 mm to 250 mm. The prices range from $23.40 to $59.50 for the in-line type and $139.50 to $174.50 for the offset type.

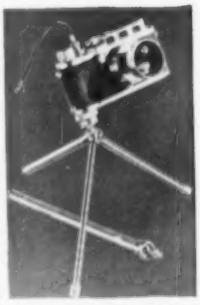
STEREO SERVICE, consisting of processing and mounting, is offered by Pavelle Color Inc., 533 W. 57th St., New York 19, N. Y., through authorized dealers. Processing charges are $1 for Ansco color films and $1.25 for Ektachrome. Mounting charge is $1.20 per 16-exposure roll and 15 cents per individual pair, minimum order charge of $1.

COLLECTOR'S CABINET (suitable for reel storage) comes with three 600-ft reels of Irish Green Band recording tape giving three hours of recording at 3¾ double track; one roll of splicing tape; one 150-ft roll of leader stock; 20 reel tabs; and two empty reels, 600- and 150-ft. Price is $8.95 from dealers or direct from ORRadio Industries, Inc., T-120 Marvyn Rd., Opelika, Kans.

KALIMAR PRISMATIC RANGEFINDER is an accessory for the Exakta camera and focuses by means of a split image outlined in the center of a non-frosted circle, converting the camera for eye-level use. Reflex image is not reversed. Price is $65. More information available from Arel, Inc., 4916 Shaw Ave., St. Louis 10, Mo.



ACCORDION-TYPE HOLDER for filters and accessories is available in two sizes, one holding 6 filters, a filter holder, and a lenshade, and the other holding 12 filters. Prices are $2 and $4 at photo dealers or direct from The Ednalite Optical Co., Inc., Peekskill, N. Y.



MINOX TRIPOD is a vest-pocket type taking all cameras from the sub-miniature to the Linhof Super Technika 23. Two legs and cable release are concealed in a third leg; opens in 10 sec into a tripod with tilting swivel top for use on a table, ledge, or against a wall. Measuring 7½x¾ in. when folded, it weighs four oz and is priced at $9.95. Available at camera dealers or direct from Kling Photo Corp., 235 Fourth Ave., New York 3, N. Y.

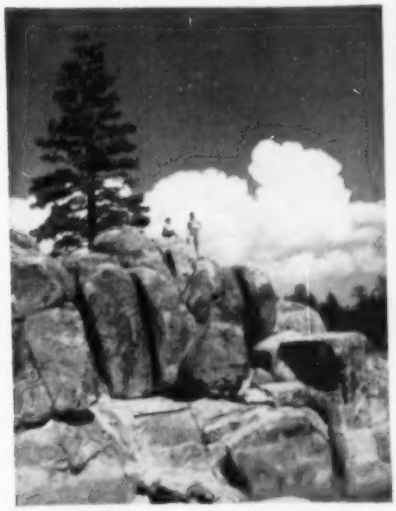
MINOX ACCESSORIES are announced by Kling Photo Corp., 235 Fourth Ave., New York 3, N. Y. Right-angle finder No. 6200 clips over the viewfinder-eyepiece of the camera. A silver-surfaced mirror deflects

(*Continued on page* 152)

6 Ways to Darken the Sky

(*Continued from page 82*)

filter is that its effect can be varied as desired by rotating one of the elements, looking through the filter at the scene until sufficient darkening is achieved. Some extra exposure is required (from one to four stops, according to the extent of the darkening)—the greatest effect occurring when the picture is made at right angles to the sun. Even darker skies can be produced by using the polarizing filter in conjunction with a colored filter.



Polarizing filter used in making this picture brought out rolling clouds, darkened sky—providing suitable background for the two figures.

3. The simplest way of all, slight underexposure works by making the sky just thin enough in the negative to make it print dark. The film's latitude is usually enough to prevent shadow areas from being unduly affected.

4. At close distances outdoors, flash exposures will be so short that very little of the existing light will register on the film—making the sky area (unaffected by the flash) go very dark.

5. Using infrared film makes the sky go very dark at the zenith, gradually fading into a light gray at the horizon (where there is more red in the daylight). The film is particularly good in "removing" the haze so common in distant scenes.

6. If none of the above techniques were used during the picture-taking itself, you must then resort to the burning-in procedure illustrated on page 67. Most important thing to remember here is to keep the card moving constantly, so that no sharp line appears at the edge of the sky area. Also, too much burning-in will give an unnaturally dark, foreboding look to the sky.—

Note: In case you didn't notice it yourself, the middle caption for item 3 on page 83 contains an error. A polarizing filter is not "two filters" when used in this manner. It is a single sheet of polarizing material which is rotated on its own axis until the desired effect is obtained.

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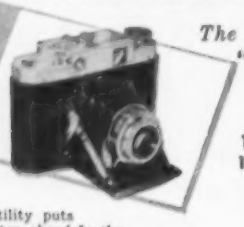

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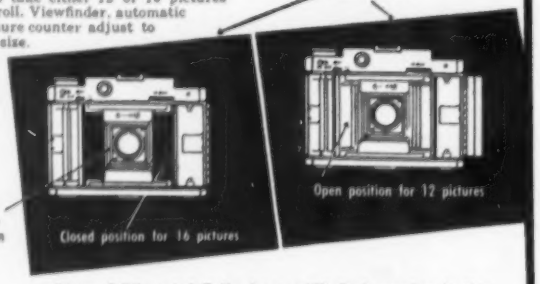

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contests and markets

CONTESTS

LIFE MAGAZINE, along with the **PHOTOGRAPHIC SOCIETY OF AMERICA**, has announced a $10,000 essay contest for amateur photographers. Prizes of $5,000, $2,500, and $1,000 will be awarded to winning entries which may be black-and-white prints or color transparencies and must be accompanied by captions and text in the style of *Life*. Photo essays will be judged as material regularly submitted to *Life*, and if winning entries are published, *Life* will pay usual page rates, as well as prize money. A booklet "How to Win the *Life* Contest" which has been made available by the PSA to those interested in the contest, is available from the PSA office, 30 East 60th Street, New York, N. Y. Entries themselves must be mailed before July 31, 1955, to Box 795, New York 46, N. Y.

BOYS' LIFE magazine opened its 1955 photography contest May 1 to boys and girls who will not have passed their 19th birthday by September 15, 1955. Over $2,000 worth of photo-equipment prizes will be awarded among the seven following groups of entry: Color Slides; Camping and Hiking; Action in Sports; People; Animals; Landscapes and Buildings; Trick and Gag photos. Photographs will be judged within each class of entry but duplicate prints may be entered in any class under which it can qualify. No more than one prize may be won by a contestant in each category. Black-and-white photographs must be no larger than 8x10" and all entries must be accompanied by the following information: Name, address and age; type and make of camera, film, flashbulbs, and filter used; when and where picture was taken and title of picture. Model releases must be available on request for any recognizable people in the pictures. Photographs and transparencies will be returned only if covered by return envelope and postage. Submissions to the contest and requests for further information should be sent to Boys' Life Photo Contest, 2 Park Avenue, New York 18, N. Y.

FLOWER GROWER magazine has announced a contest featuring photographs taken in gardens and scenic spots either in the United States or abroad. Duplicate prizes of $25 for the best photograph will be awarded in both categories along with 5 honorable mentions in each group, consisting of subscriptions to Flower Grower. There are no restrictions as to the type of photographs: they may be close-ups of flowers, garden views, etc. Interest is primarily in black-and-white photography but color will be considered. Send your entries to Photo Contest Department, Flower Grower, 2049 Grand Central Terminal, New York 17, N. Y.

THE 9TH INTERNATIONAL ZOO PHOTOGRAPHY CONTEST, featuring photographs of animals taken in any recognized zoo in the world, has been announced by the Nature Camera Club of Chicago and the Chicago Zoo. Black-and-white prints must be 8x10 or larger and mounted on 16x20 mounts; however, foreign entries may be submitted unmounted. In the color division, 2x2 to 3¼x4¼ slides are requested. Prizes, duplicated in both classes, are as follows: 1st—$50, 2nd—$25, 3rd—$10, and 20 honorable mentions at $5 each. In cases where winning photographs were taken at the Brookfield Zoo, prizes will be doubled. The necessary entry blanks are available from the Chicago Zoological Park at Brookfield, Illinois, and must be postmarked no later than the contest deadline, September 15th.

MARKETS

STAMOS PHOTOGRAPHY SERVICE, 100 Oxford Ave., Buffalo 9, N. Y., is looking for cheesecake photographs in both black-and-white and color. $5 will be paid for accepted black-and-white prints no larger than 4x5 and $10 for 2x2 color transparencies. Exclusive rights are not required and unused material covered by postage will be returned.—

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Contax IIA f2 Sonnar	165.00
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Exakta VX f2 Biotar Preset	169.50
Argus C3 Case & Flash	31.50
Argus C4 f2.8	46.00
Bolsey B2 f3.2	24.50
Kodak 35 RF f3.5	29.00
Retina IIA f2 Xenon	72.00
Signet f3.5 Ektar	47.00
Mercury II f2.7 Tricor	19.00
Voigt Vito II f3.5 NEW	45.50
Kodak Stereo f3.5	57.00
Stereo Realist f3.5	73.50

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Kodak Brownie f2.7	$ 22.00
Bolex H8 Leader f1.9 Turret	145.00
Revere 88 f2.5	32.00
Revere 80 f2.5	46.00
Revere 44 f1.9 Mag. Turret	93.50
Pathe Super 16 f1.9 Turret	225.00
Bolex H16 Leader f1.9 Turret	149.50
B&H 253 Monterey 500W	55.00
DeJur 750W	54.00
Kodak Brownie 300W	39.00
Revere 85 500W	58.50
Revere 90 750W	74.50

Slide Projectors

Argus FR 300 Case	$ 27.00
Goide Manumatic 300W	26.50
TDC Maintiner 300W Semimatic	30.50
TDC Model D 300W Semimatic	36.50
Brunberger 300W Auto Changer	27.50

MISCELLANEOUS CAMERAS

Ricoflex VI f3.5	$ 21.50
Rolleicord IV f3.5 Xenar MX	74.00
Auto Rollei f3.5 Xenar MX	118.00
Auto Rollei f3.5 Tessar MX	133.00
Kodak Medalist I f3.5 Ektar	56.00
Kodak Medalist II f3.5 Ektar	112.00
Polaroid Land	41.50
Polaroid Highlander	42.00
2¼x3¼ Ann. Graphic f4.5 R.F.	82.50
4x5 Ann. Graphic f4.5 R.F.	98.50

Popular Lenses & Accessories

28mm f3.5 Angenieux	$ 74.00
35mm f2.5 Angenieux	57.00
35mm f3.5 Summaron	61.00
40mm f3.5 Casseron	31.00
58mm f2 Biotar Preset	64.00
135mm f4.5 Hektor	57.00
135mm f3.5 Nikkor	84.00
135mm f4 Sonnar	67.00
135mm f3.5 Tele Colinar Preset	42.00
Leitz Focaslide	22.50
Leitz B.C. Flashgun	17.50
Leitz Imarect Finder	23.00

Below Wholesale!
THE FAMOUS FUTURA
A 139.50 Camera for 59.50

- Interchangeable Schneider Xenar f2.8 Lens
- Built In coupled Rangefinder
- Prontor SVS Shutter 1 to 1/300 sec.
- Flash & Strobe Synch
- Built In Self Timer 12 Second Delay
- Automatic Film Transport
- Die Cast • Black Leather Covered

Case Reg. 12.95
Special 6.95
Deluxe Flashgun 6.95

NEW! NEW! NEW! 35mm EKTACHROME!

12 EXP.	20 EXP.	36 EXP.
1 Roll $1.19	1 Roll $1.49	1 Roll $4.10
4 Rolls 4.19	4 Rolls 5.49	3 Rolls 6.29

Bulk Film 28 Ft. $11.25—100 Ft. $37.50

MIRACLE ANSCOCHROME A.S.A.32

Stops Fast Action! Accurate Color! Tremendous Depth of Field! Frame Numbered—Daylight or Tungsten

20 Exp.—1 Roll 1.37—4 rolls 4.99
36 Exp.—1 Roll 1.99—3 Rolls 5.49

DEVELOP YOUR OWN EKTACHROME

Kit E1—Develops 6 rolls 120/620	$1.05
Kit E2—1 Qt. develops 6 rolls, 20 exp. 35mm	$1.80
Kit E2—½ gal. develops 24 rolls, 20 exp. 25mm	$4.80

Kodak's HI-SPEED TRI-X
A Miracle in Black & White

35mm, 20 Exp., 6 for $2.15—10 for $3.19
35mm, 36 Exp., 4 for $1.95— 7 for $3.15
Bulk Film—50 Ft. $2.45—100 Ft. $3.99
Please add 20¢ for postage

FACTORY FRESH ANSCO 535
35mm SPECIAL SALE 35mm

20 EXP.—1956 DATE—FRAME NUMBERED
4 Rolls $2.75—7 Rolls $5.99—10 Rolls $8.25
28 ft. ANSCO FACTORY SEALED CANS
Tongued, Frame-Numbered—1956 Date
1 Can $6.75—3 Cans $8.29—5 Cans $27.95
8 Free Cassettes & 8 Mailing Bags with ea. can

WE DO NOT SELL OUTDATED OR WAR SURPLUS FILM. ALL OUR FILM IS GUARANTEED FRESH AND DIRECT FROM THE FACTORY. ENCLOSE 20c FOR POSTAGE.

LOWEST PRICE WEST OF THE ROCKIES!
World Famous EDIXA!
With Automatic Rapid Film Transport!

BRAND NEW **$39.95**

With Flash Gun, Blue Velvet Lined Cowhide Case. Special . **$5.95**

- COUPLED RANGE-FINDER
- Color Corrected f:2.8 Isco Isconar Lens
- Pronto Shutter to 1/200 sec.
- Built-In Flash Synch
- Self-Cocking Shutter
- Double Exposure Prevention
- Built-In Self Timer
- Custom Finished, Black Morocco & Chrome

SPECIAL

LOOK AT THESE VALUES
CLOSE OUT OF POPULAR LENSES

FOR EXAKTA, PRAKTICA, CONTAX, PENTACON . . .

	Reg.	SPECIAL
90mm f4 Sun Tele Lens coated	51.95	28.88
90mm f4 Sun Tele Preset Lens coated	64.95	38.50
135mm f4 Sun Tele Lens coated	59.50	34.50
135mm f4 Sun Tele Preset Lens coated	74.95	39.50
135mm f3.5 Tele Colinar preset lens ctd.	84.95	47.50

35mm KODACHROME
Daylight or Type A

4 Rolls	$7.49
6 Rolls	10.50

ANSCOCHROME
28 ft. tongued, frame numbered. 1956 dated. FREE! Bulk film loader & 8 carts . . . complete **$8.95**

Save up to 40% on brand new 8mm MOVIE LENSES!
10% DOWN

Will Fit All Standard 8mm Cameras

1½" f3.2 Tele	7.50		
1½" f3.2 Foc. Mt.	11.95	1½" f1.5 Foc. Mt.	28.75
1½" f2.5 Foc. Mt.	14.95	7mm f2.5 W.A.	17.50
1½" f1.9 Foc. Mt.	22.95	8mm f1.9 W.A.	26.50

35mm BULK FILM LOADER

w 10 empty cartridges **$4.95**
w/100 ft. fresh safety film
Kodak Plus X or XX **8.39**
With 28 ft. Ansco 535 . . . . $10.99
With 28 ft. New Ektachrome E2 . . . . . $15.49
With 100 ft. Kodak Tri-X $8.65

35mm EASTMAN KODAK 1956 Dated

Plus X or Plus XX—20 Exp.	6 for $1.79
Plus X or Plus XX—36 Exp.	4 for $1.97
Bulk Film—100 ft.—Plus X or Plus XX	$3.75
	10 for $2.75
	8 for $3.50

On Film—Please include 20c for postage
Calif. residents include sales tax *Reloads

WESTERN PHOTO SALES BOX 46025, DEPT. P, COLE BR., HOLLYWOOD 46, CALIFORNIA

QUALITY COLOR ENLARGEMENTS
24 HOUR SERVICE

2½ x 3¼	3¼ x 4	4 x 5	5 x 7	8 x 10
20¢	37c	45c	75c	1.60

Color Slide Duplicates 5 for 1.00 12 for 2.25

NEW SIZE COLOR PRINTS
1X—1⅝ x 1⅞ SPECIAL! 10 Prints for **95c**

COLOR FILM DEVELOPING
All Sizes Ansco or Ektachrome (with mounting $1.) **75c** per roll

MODEL FILM CO. Dept. P, 78 W. 47 St. New York 36, N. Y.

COLOR PRINTS

2x3¼	2½x3¼	3¼x4
20¢	25¢	44¢

NEW SIZE 1x (1¾x1½) 20 Prints for 1.30

4x5	5x7	8x10
50¢	85¢	1.75

Color Developing
35mm Ansco mtd. . 1.00
35mm Ektachrome Mounted 1.00
120—620 Ektachrome 1.00
FREE AIR DELIVERY If Over $3.00

Slide Duplicates: **6 For 1.00**

35MM 20 EXP. RELOADS	
New Ektachrome (ASA 32)	4 for 5.75
Ansco Color 535	4 for 4.25
Kodak Miracle Tri-X	6 for 2.50
Anscochrome	4 for 5.25

SERVICEMENS COLOR PRINT CO.

From European Theatre
24 Hour Delivery
Send Work To:
East Coast Branch
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New York 36, N.Y.

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48 Hour Delivery
Send Work To:
West Coast Branch
Box 46063, Cole Br.
Hollywood, California

ULTRA FAST! NEW!
35mm EKTACHROME

20 EXP	36 EXP
1 Roll 1.50	1 Roll 2.45
4 Rolls 5.50	3 Rolls 6.35

28 ft.—6 free carts $11.35
100 ft.—24 free carts 37.95

NOT AERO EKTACHROME

35mm EASTMAN KODAK 1956 Dated
Plus X or Plus XX—20 Exp. . . . . 6 for $1.79
Plus X or Plus XX—36 Exp. . . . . 4 for $1.97
Bulk Film—100 ft.—Plus X or Plus XX $3.75

KODAK'S MIRACLE TRI-X
NO FILM LIKE IT . . .
200 DAYLIGHT—160 TUNGSTEN

*35mm 20 EXP	
6 Rolls	3.19
10 Rolls	3.25
36 EXP	
4 Rolls	1.99
6 Rolls	3.50

So Fast No Floods Or Flash Needed For Even Dimly Lit Interiors. For Great Depth of Field . . . For Unbelievable Speed . . . For Smoothness of Grain Use E.K.'s TRI-X.

BULK—50 ft.—$2.45—100 Ft.—$3.95

35mm BULK FILM LOADER

with 15 free cartridges . . .	$4.99
with 100 ft. 35mm Kodak Tri-X	8.49
with 100 ft. 35mm Kodak Plus-X	8.25
with 28 ft. Ansco Color BM535 . .	10.95
with 28 ft. Ektachrome	15.75

ANSCO COLOR

Sealed cans—1956 dated. Tongued & Frame Numbered
1 can—28 ft. . . . **$6.79**
3 cans **$18.99**
FREE! 8 Carts. per can

BULK ANSCOCHROME
Tongued & Frame Numbered, 28 ft.— FREE! 8 carts. & Daylight Film Loader **$8.99**

35mm KODACHROME
1956 DATE—FACTORY PACKED
20 Exp—3 Rolls $5.49, 6 for $8.89

NEW 35mm ANSCOCHROME
Ansco's Miracle Color Film (A. S. A. 32)

20 Exp.	12 Exp.	36 Exp.
1 roll 1.39	1 roll 1.00	1 roll 1.95
4 rolls 4.95	3 rolls 2.75	3 rolls 5.55

All Film Factory Fresh—No War Surplus or Outdated Film. Please Include 20¢ for Postage. *Reloads*

Miniature Film Supply Co., Dept. P
1190 Sixth Ave., New York 36, N. Y.

world's smallest reflex

with famous Goerz hi-speed F:2 lens $139.50 with case and cord

New minicord III

A real "he-man's" camera, precision made but built to take it . . . no bigger than a pack of king-size cigarettes, the brilliant, new Model III has all these big camera features: famous Goerz 6 element coated, F:2 lens • stops down to F:11 • takes a picture a second • reflex focusing up to 12" • flash synchronized • takes color or B&W. Truly a masterpiece of craftsmanship for those of discriminating taste.

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PROFESSIONAL QUALITY
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DYE-TRANSFER
COLOR PRINTS
ANY MAKE FILM
Write for prices or send film.

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Write today, giving full details about your camera and get our premium cash offer or trade-in allowance. Ask for literature on the camera you want . . . *we Buy, Sell and Trade Cameras.*

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COMMERCIAL • PORTRAIT • ILLUSTRATIVE
Finest professional instruction and equipment. Training under G.I. Bill 550. Living accommodations secured for men. Attractive residence for girls. Enter first Monday each month. WRITE REGISTRAR, ROOM 549, 750 NORTH MICHIGAN AVENUE, CHICAGO 11, ILL.
RAY-VOGUE

Calendar of exhibitions

*Conducted according to the recommended practices of the Photographic Society of America.

6th Annual Southwest International Exhibition of Photography*, Southern California Association of Camera Clubs, San Diego, Calif.
On exhibit at Southern California Exposition and San Diego County Fair from June 24 to July 4, 1955.

1955 Exhibition of Pictorial Photography, South Shields Photographic Society, South Shields, England.
On exhibit at South Shields, July 2 to 23, 1955.

17th Annual International Finger Lakes Salon of Photography*, Auburn Camera Club, Auburn, N. Y.
On exhibit at Cayuga Museum of History and Art from June 11 to July 3.

13th Calgary Stampede Salon of Photography*, Calgary Photographic Society, Calgary, Alberta, Canada.
Closes June 11, 1955.
Entry fee $1, four prints allowed.
On exhibit at Calgary Exhibition and Stampede, July 11 to 16, 1955.
For information and entry blanks, write The Secretary, Calgary Exhibition and Stampede Salon of Photography, Administration Bldg., Victoria Park, Calgary, Alberta, Canada.

4th Annual Nature Salon*, Channel City Camera Club, Santa Barbara Museum of Natural History and the Santa Barbara Botanic Garden, Santa Barbara, Calif.
Closes July 5, 1955.
Entry fee $2, four prints; $1, four slides allowed.
Entries for this exhibit should "portray a portion of nature unchanged by humans or human activity."
Prints on exhibit July 8 to 30 at Faulkner Memorial Art Galleries; color slides on exhibit July 16 at Plumber Park, Hollywood, July 20 at Santa Barbara Museum of Natural History and July 23 at Santa Maria, Calif.
For information and entry blanks, write Clarence Rogers, P.O. Box 177, Santa Barbara, Calif.

1st Pondicherry International Salon of Photography, Ashram Photography, Pondicherry, India.
Closes July 10, 1955.
Entry fee $1, number on request.
On exhibit in Pondicherry during August, 1955.
For information and entry blanks, write Wilfred C. Pinto, Ashram Photography, Sri Aurobindo Ashram, Pondicherry, India.

8th Illinois State Fair International Exhibition of Photography*, Capitol City Camera Club, Springfield, Ill.
Closes July 27, 1955.
Entry fee $1, four prints allowed.
On exhibit at State Fair, August 12 to 21.
For information and entry blanks, write Evelyn M. Robbins, 2417 South 11th St., Springfield, Ill.

8th Witwatersrand International Salon of Photography*, Camera Club of Johannesburg, Johannesburg, South Africa.
Closes July 31, 1955.
Entry fee $1, four prints allowed.
On exhibit at Johannesburg Public Library during September 1955.
For information and entry blanks, write Salon Secretary, P. O. Box 2285, Johannesburg, South Africa.

4th Annual Photographic Salon, Sandy Bay Camera Group, Rockport Art Association, Rockport, Mass.
Closes August 10, 1955.
Entry fee $1, four prints allowed.
On exhibit at Rockport Art Association August 28 to Sept. 10, 1955.
For information and entry blanks, write Mr. Obert A. Hagen, 18 Chestnut St., Gloucester, Mass.

4th Salon Internacional de la Pena Fotografica Rosarina, Pena Fotografica Rosarina, Rosario, Argentina.
Closes August 15, 1955.
Entry fee $1, four prints allowed.
On exhibit in Rosario from October 1 to 30, 1955.
For information and entry blanks, write Pena Fotografica Rosaria, Sarmiento 633, Rosario, Argentina.

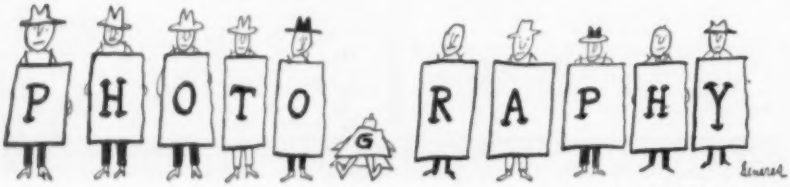
1955 Evergreen Empire Color and Nature Slide Exhibition*, Bremerton Camera Club, Bremerton, Wash.
Closes August 15, 1955.
Entry fee $1, four slides allowed.
On exhibit at Kitsap County Fair, Bremerton from August 25 to 28; at YMCA, Aberdeen, on August 31; and Seattle, Sept. 9.
For information and entry blanks, write C. W. Biedel, Box 1236, Station A, Bremerton, Wash.

2nd Annual Central Washington Photographic Salon, Yakima Camera Club, Yakima, Wash.
Closes August 27, 1955.
Entry fee $1, four prints allowed.
On exhibit in Yakima from Sept. 21 to 25, 1955.
For information and entry blanks, write G. S. Maring, 218 N. 35th Ave., Yakima, Wash.

1955 Northwest International Photographic Salon*, Western Washington Fair, Puyallup, Wash.
Closes Sept. 4, 1955.
Entry fee $1, four prints allowed.
On exhibit at Western Washington Fair, Puyallup, Sept. 17 to 25, 1955.
For information and entry blanks, write Western Washington Fair Association, Puyallup, Wash.

Chicago International Salon of Photography*, Chicago International Photographic Salon Association, Inc., Chicago, Ill.
Closes Sept. 10, 1955.
Entry fee $2, four prints allowed.
On exhibit at Museum of Science and Industry, Oct. 2 to 30.
For information and entry blanks, write Miss Mary Abele, 2617 Hartzell Street, Evanston, Ill.

11th International Color Slide Exhibition, Chicago Color Camera Club, Chicago, Ill.
Closes Oct. 10, 1955.
Entry fee and number of prints on request.
On exhibit at Museum of Science and Industry Oct. 30 and Nov. 5 to 6, 1955.
For information and entry blanks write Frances Hutton McQuown, 8 South Michigan Ave., Chicago 3, Ill.—



NOW! COLOR PRINTS as low as 2¢ each

THIS VACATION GET A COLOR PRINT OF ALL YOUR COLOR SHOTS

You get standard 35mm color film either Kodak or Ansco — after exposure, we develop and deliver mounted transparencies and color prints on genuine Ansco Printon — See our Unbelievable Combination Prices below...

Plan 1—20 Contact Color Prints (any assortment) from any of your 35mm Kodachrome, Ansco or Ektachrome Transparencies	1.50
Plan 2—Develop & mount Your Roll 20 Exp. 35mm Ansco or Ektachrome—Plus 20 Prints	2.25
Plan 3—1 Roll 12 Exp. Ektachrome Film including Dev. & Mtg.—Plus 12 Prints	2.50
Plan 4—3 Rolls 12 Exp. Ektachrome Film including Dev. & Mtg.—Plus 36 Prints	7.15
Plan 5—1 Roll 20 Exp. 1956 Dated Ektachrome Film including Dev. & Mtg.—Plus 20 Prints Any Assortment	3.25
Plan 6—3 Rolls 20 Exp. 1956 Dated Ektachrome Film including Dev. & Mtg.—Plus 60 Prints Any Assortment	6.95
Plan 7—1 Roll 36 Exp. Ektachrome Film including Dev. & Mtg.—Plus 36 Prints	4.95
Plan 8—2 Rolls 36 Exp. Ektachrome Film including Dev. & Mtg.—Plus 72 Prints	8.95
Plan 9—1 Roll 20 Exp. 1956 Dated Ansco Color Film including Dev. & Mtg.—Plus 20 Prints Any Assortment	2.95
Plan 10—3 Rolls 20 Exp. 1956 Dated Ansco Color Film including Dev. & Mtg.—Plus 60 Different Prints	7.95
Plan 11—1 Roll 36 Exp. 1956 Dated Ansco Color Film including Dev. & Mtg.—Plus 36 Prints	4.65
Plan 12—2 Rolls 36 Exp. 1956 Dated Ansco Color Film including Dev. & Mtg.—Plus 72 Prints	7.95
Plan 13—1 Roll 20 Exp. 1956 Dated Kodachrome Film including Dev. & Mtg.—Plus 20 Different Prints	3.95
Plan 14—3 Rolls 20 Exp. 1956 Dated Kodachrome Film including Dev. & Mtg.—Plus 60 Different Prints	10.95

COLOR DEVELOPING For the Perfectionist

24 HOUR DELIVERY

35mm Developing & Mounting

	1 Rl.	2 Rls.	3 Rls.
Anscochrome Ansco Color Ektachrome	1.00	1.85	2.65

36 Exposure Ansco or Ektachrome 1.75

	1 Rl.	2 Rls.	3 Rls.
120-620 Ansco or Ektachrome	1.00	1.75	2.50

REDUCED PRICES—KODACOLOR PRINTS

3X (1½x5) ..... Now 29c ea.
5X (5x7) ..... Now 1.35 ea.
8X (8x10) ..... Now 3.25 ea.

35mm COLOR SLIDE DUPLICATING

MOUNTED	UNMOUNTED
17¢ ea.	15¢ ea.
6 for 1.00	7 for 90c
20 for 3.00	20 for 2.50

DANGER — **AVOID BUCK PASSING**

When dissatisfied with results from reloads, don't let the Developer say that the Reload you bought was defective and don't let the Reload Seller tell you that it was the Developers' fault. PANORAM spools and develops its own Reloads and GUARANTEES perfect results or your money back.

THIS WALLET SIZE COLOR PRINT

from 35mm only **17½¢** minimum order 8 for 1.40

SPARKLING COLOR PRINTS

3¼ x 4	2½ x (2½ x 3¼)	5 x 7
3x 43¢ ea.	22¢ ea.	5x 85¢ ea.
Any 6—2.35	Any 9 for 1.89	Any 3—2.40

4 x 5		8 x 10
4x 50¢ ea.		8x 1.89 ea.
Any 4—1.85		Any 3—5.35

EXTRA! NEVER BEFORE! KODAK 1956 EKTACHROME RELOADS

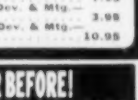
35mm Daylight or Indoor

3 Times as Fast as Kodachrome (ASA32)
(Do Not Confuse with Aero Ektachrome)

Price Incl. Dev. & Mtg.

20 EXP.
1 Roll $2.50
3 Rolls 6.95

36 EXP.
1 Roll $3.95
2 Rolls 6.95



BUY OUR EKTACHROME WITH CONFIDENCE

Do not confuse this new Ektachrome film with outdated war surplus, Aero Ektachrome. This is fresh, 1956 dated Ektachrome, manufactured by Eastman Kodak and intended for amateur use.

35mm Ektachrome Bulk Film 1956 Dated 28 Ft., Price Incl. Dev. & Mtg. $16.50 No Dev. 28 Ft. $11.50—100 Ft. $38.00

#535 ANSCO COLOR RELOADS

Why not enjoy the same low cost color film as "economy wise professionals" Insist on #535. It's the only Color Film made by the Ansco Co. which is notched, numbered, fresh dated and intended for amateur use. Any other Ansco color reload except #535 is a Hollywood Short End and could be years and years old. Don't be deceived! INSIST ON #535 Daylight or Tungsten.

SPECIAL SALE

Price Includes Developing & Mounting

20 EXP.
1 Roll $1.85
3 Rolls 4.85
5 Rolls 7.65

BULK ANSCO—28 ft. sealed can. 8 FREE cart. Fresh, notched, frame numbered, 1956 dated. Dev. & Mount. included $11.79

MIRACLE ANSCOCHROME—ANSCO'S NEWEST COLOR FILM SENSATION

120-620 ANSCOCHROME — SUPERFAST SPEED — A.S.A. 32

Why wait 2 weeks for a tannish negative? Then 2 more weeks for a color picture. How would you like sparkling, true-color transparencies returned by us in 24 hours?
Now get even the fastest action shots—
Now get brilliant, full color shots even in dim light—
Now get beautiful results even with a box camera—
NOW YOU GET ALL THIS WITH ANSCOCHROME
1 Roll **$1.95** 3 Rolls **$5.50**
These prices include developing and mounting
Also size 828—1 Roll **$1.75**—3 Rolls **$4.75**

INTRODUCTORY OFFER BULK 35mm ANSCOCHROME

- Daylight Bulk Film Loader plus 28 ft. of new Anscochrome, tongued & frame numbered.
- 8 new, FREE cartridges & 8 mailing bags.
- Deluxe developing & mounting for 8 rolls when sent in.

All for Only **$14.75**

35mm ANSCOCHROME WITH THE 6 MIRACLE IMPROVEMENTS

- miraculous speed—ASA 32
- miraculous latitude
- miraculous color balance
- miraculous fine grain
- miraculous color fidelity
- miraculous low prices

DAYLIGHT or TUNGSTEN

12 EXP.	20 EXP.	36 EXP.
1 Roll $1.85	1 Roll $2.25	1 Roll $3.50
3 Rolls $5.25	3 Rolls $5.95	2 Rolls $6.50

All Prices Include Deluxe Developing and Custom Mounting

PANORAM FILM LABS 1190 6th Avenue, Dept. 3 New York 36, N. Y.

35mm ANSCOCHROME
Fastest Fine Grain Color Film Made. Wonderful for stereo. Prices include Developing and Mounting.

20 EXP.	36 EXP.
1 Roll $2.29	1 Roll $3.50
3 Rolls $6.29	2 Rolls $6.50

Daylight or Tungsten

YOU CAN'T BEAT THIS! ANSCO COLOR #535
1956 factory sealed cans, notched & frame numbered. 28 ft. (8 free carts.) $11.35 Includes Dev. & Mtg. as ready.

35mm BULK EKTACHROME
1956 Frame numbered. 28 ft. (8 free carts.) $16.25 Includes Dev. & Mtg. as ready. NOT Aero Ektachrome

28 ft. NEW ANSCOCHROME
with FREE BULK Film Loader, 8 Carts., 8 mailing bags. $14.95 Includes Dev. & Mtg.

GOLDEN GATE COLOR PRINTS

8X10—1.50 each

2 x 3¼	19¢ ea.—Any 6 for 1.15
2½ x 3¼	23¢ ea.—Any 6 for 1.35
3¼ x 4	43¢ ea.—Any 3 for 1.25
4 x 5	49¢ ea.—Any 2 for .90
5 x 7	90¢ ea.—Any 2 for 1.75

SLIDE DUPLICATES
5 for 1.00 • 15 for 2.50

35mm Color Film Developed & Mounted
Ansco — 1.00 per roll — 3 for 2.75
Ektachrome — 1.00 per roll — 3 for 2.85

120-620 Ektachrome	1.00 per roll
120-620 Ansco	.75 per roll

GOLDEN GATE COLOR PRINTS — P. O. Box 46056 Cole Br. Hollywood 46, California • Dept. P

NEW 35mm EKTACHROME
Special Low Prices Includes Developing & Mounting*

12 EXP.	20 EXP.	36 EXP.
1 Roll $3.95	1 Roll $5.49	1 Roll $5.95
3 Rolls 9.95	3 Rolls 14.95	2 Rolls 7.50

NOT Aero Ektachrome

35mm KODACHROME
20 EXP.—1956 Dated
ORIGINAL FACTORY PACKAGES
3 Rolls ..$8.49 6 Rolls ..$10.50

SPECIAL WHOLESALE
35mm ANSCOCOLOR #535
1956 Frame Numbered*
Price Includes Dev. and Mtg.
3 Rolls ..$4.79 6 Rolls ..$9.00

PLEASE ADD 15c POSTAGE FOR FILM ORDERS. CALIF. RESIDENTS ADD 3% SALES TAX.
* Reloads

What's New

(*Continued from page 146*)

the viewfinder image with full brightness, it is claimed. A reflex viewfinder No. 6201 consists of a lens and mirror system, clips to the camera, and does not interfere with the regular viewfinder. Prices are, respectively, $14.95 and $27.50 at Minox dealers.

STEREO COLOR PRINTS and viewer are announced by Pavelle Color Inc., 533 W. 57th St., New York 19, N. Y. Viewing size is 2¾x2½ in. Prints can be cut apart for framing. Stereo print pairs are priced at 79 cents each. The viewer alone is 79 cents, but only 12 cents when purchased with three or more 3-D prints.

COLOR-LURE Picture Lamp shows transparencies enlarged and mounted in a framed light box. In three sizes starting at 4x5, price begins at $4.95. Full information available from Color-Lure, Inc., 6743 S. Western Ave., Chicago 36, Ill.

CUSTOM FILM LABORATORY, 1780 Broadway, New York 19, N. Y., announces its opening. This firm specializes in color filmstrip and slide processing. Price list and additional information available from the above address.

DUAFLEX camera owners can now use a cable release and a self-timer, with the addition of the Pho-T-Pho Adaptor, which slips onto the shutter release. The Adaptor is capable of taking the attachments singly or in combination. Product of Studio City Camera Exchange, 12174 Ventura Blvd., Studio City, Calif., the price is $1.39.

TATCH invisible stickers are heavily gummed on both sides, designed to stick to almost all surfaces and eliminate fall-off corners. The stickers come in book form and pages are perforated for easy removal of the stickers. Product of Eureka Specialty Printing Co., 530 Electra St., Scranton, Pa., price is 10 cents a book.

EASTERN CAMERA EXCHANGE announces the opening of a new branch store at 354 New York Ave., Huntington, Long Island, N. Y.

MAYFAIR MFG. CO., 89-93 Grand St., Brooklyn 11, N. Y., offers a rotating disc-brain calculator with the purchase of any Mayfair light unit. It instantly gives the correct exposure for color, black-and-white, still, and movie films and is based on two or four light units. Distances covered are from three to forty feet, apertures from *f*/1.4 to *f*/22, and speeds from ¾ to 1/20 sec.

IHAGEE DUST-COVER for Exakta camera has the same bayonet mount as the lens and is used when the lens is removed, protecting the mirror from finger marks and scratches. Exakta Camera Co., 705 Bronx River Rd., Bronxville 8, N. Y., says it will keep dust, grit, and moisture away from the shutter mechanism. Available at camera stores, this unbreakable plastic cover is priced at $1.50.

BOOK CATALOG said to be the first complete publication of its kind, is offered, free, to any amateur by Amateur Photographic Book Publishing Co., Inc., 33 W. 60th St., New York 23. A subject classification, as well as an alphabetized title index, speeds the search for any desired book. Authors' names are also indexed, separately.

ROCHESTER INSTITUTE OF TECHNOLOGY, 65 Plymouth Ave. S., Rochester 8, N. Y., announces a course designed for professional photographic personnel engaged in large-scale processing of color and black-and-white materials. The course runs from July 11 through Aug. 26 and consists of lectures and technical demonstrations by faculty members and technicians and executives from Ansco and Eastman Kodak.

CONTATEST has been introduced by Carl Zeiss, Inc., 485 Fifth Ave., New York 17, to provide parallax adjustment and focus through the regular lenses of Contax IIa and IIIa cameras. It permits close-ups from 20 through 40 inches with the 50-mm Contax lens, hand-holding the camera. Price is $29.

FILMOSTO Economy Glass Binders are imported by Karl Heitz, 150 W. 54th St., New York 19. The new-type binders serve as enclosures for 2x2 slides in their cardboard mounts, which become inside masks preventing the troublesome Newton rings. Prices are: for box of 20, $1.95; box of 100, $8.95.

PALOMA PHOTO CHINA round and square plates are announced by Spiratone, Inc., 135-06 Northern Blvd., Flushing 54, N. Y. Sensitized with a chloro-bromide emulsion of medium speed and contrast, each plate comes with a wooden stand and test strips. Sizes and prices are: 7-in., $2.25; 9-in., $4.50. Quantity prices available upon request.

FLORENTINE FRAMES, hand-carved in Italy and covered in gold leaf, are announced by Egon Egone, 91 Winthrop Rd., Brookline 46, Mass. Available in all photo sizes from 3¼x4¼ to 16x20, prices range from $4 to $15.—

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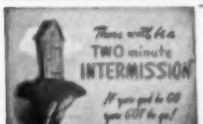

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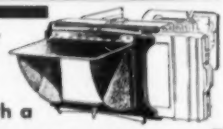

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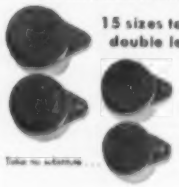

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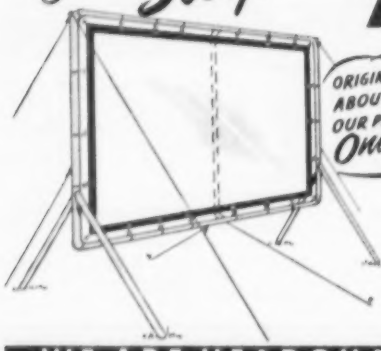
SENSATIONAL OPTICAL BARGAINS

Last Minute! Scoop!

WAR SURPLUS! TERRIFIC BARGAIN!

7½' x 10' PROJECTION SCREEN



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Complete with frame and supports, guy ropes, stakes and packing chest. Used by Army for outdoor movies.

FOR OUTDOOR OR INDOOR USE

Maximum height overall 13'7", overall width 10'6".

Effective picture area 7'1"x9'5"! Screen size 7'6"x10'. Frame size 8'1"x10'6". Wonderful bargain for camps, church groups, lodges, other organizations! A screen this size would cost several hundred dollars if purchased commercially.

Easy To Set Up—Compact For Storage

The sturdy tubular framework is collapsible, yet you don't need even a screwdriver to set it up. Erected in a matter of minutes by one or two men. When used outdoors, stakes and guy ropes keep it steady even in a strong wind. Completely water resistant, completely fungus-proof! The screen cloth will not crack even after hundreds of foldings and unfoldings. Stores away compactly in a metal-bound chest 9x12x40", which is supplied with the screen.

The screen is attached to the frame by means of a number of springs, which keeps the screen taut and wrinkle-free. A reinforcing center frame gives extra support to the frame. This is a unit designed to give years of wear under hard usage!

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Sign painting firms and concessionaires can use this screen as an easily erected movable sign for fairs, carnivals, church outings, etc. Home owners can convert them to awnings over patios which can be easily taken down and stored for the winter. (Paint them in bright colors to make them attractive!) They may also be used wherever large, unbroken areas are required—exhibit booths, display panels in stores, movable partitions, etc., etc.

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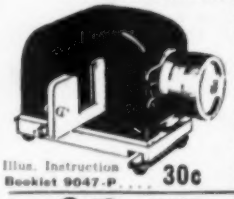
Stock No. 30,125-P—f/4.5—105mms. focal length click stops 4.5-5-6.8-11-16-22 ..... $19.50 Postpaid

BUILD YOUR OWN! 35mm. Slide Projectors



Thousands of our customers have made their own projectors. Excellent results! Money saved! NOTE: We do not furnish metal parts except Kit #50,104-P contains mounted projection lens and focusing tube.

Contains F/3.5 anastagmat projection lens in focusing tube, 2 condensers, heat absorbing glass, full instructions.
STOCK NO. 50,104-P ..... **$6.50** pstpd.

2 unmounted achromats for projecting lens, 2 condensers, heat absorbing glass.
STOCK NO. 4029-P ..... **$2.85** pstpd.

Illus. Instruction Booklet 9047-P **30c**

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Take Pictures at Night—in Movies, etc.

Fasten it over your flash reflector as an infra-red light source. For use with infra-red camera attachments, telescopes, etc. Light from your light source is filtered so that only infra-red light hits subjects. 5⅛" diam., ⅛" thick.
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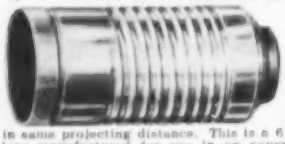
Get booklet—Infra-Red Light and Its Uses.
Stock No. 9040-P 75c

f/1.4 16mm MOVIE PROJECTION LENS



F. L. only 1" . . . or ½ that of standard 16mm projecting lens. Gives you a big picture—4 times the size normally obtained in same projecting distance. This is a 6 element coated lens manufactured for use in an expensive Juke Box Projector. Would normally retail for about $30.00. Lens unit mounted in a standard sleeve with an O. D. of 1⅜" which fits most 16mm projectors. Brass tubing available to change O. D. for adapting to other sizes from 1" to 1½". Direction sheet included. Back of this lens must come to within 5/16" of film. Excellent for making your own projector taking Viewmaster-size film, or for making a contour projector.
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Stock No. 40,126-P ..... $1.00 Pstpd.

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INSTRUCTION BOOKLETS

Easy to follow—accurate—8½ x 11 page size—many illustrations. Do-it-yourself—have! and have Fun!

	Stock No.	Price Pstpd.
How to Build Projectors	9014-P	30c
Homebuilt Telescopes	9006-P	40c
Method to Clean Precision Optics	9024-P	15c
Homebuilt Riflescopes	9018-P	40c
NEW—JUST ISSUED		
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Homemade Stereo-Viewers	9034-P	30c
Photo Micrography with Pen Microscope	9029-P	10c
Dummy Cameras	9035-P	20c
Collimating Systems	9031-P	15c
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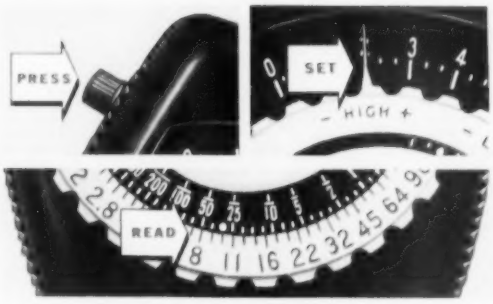

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